# Service Manu Simplified

and Technical Guide KX-G5500

(for Germany)

HANDHELD GPS RECEIVER

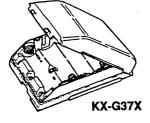
- Please use this manual together with the service manual for model No. KX-G5500 order No. KM49210334C1.
- This Service Manual indicates the main differences between; Original KX-G5500 and KX-G5500G.

## **■ REPLACEMENT PARTS LIST**

Ref. No.		Part. No.	Part Name & Description	Pcs/	Remarks
	KX-G5500	KX-G5500G		Set	
Cabinet and	Electrical Parts				
8	PQYFG5500M	PQYFG5500G	Rear Cabinet Ass'y	1	
17	PQGT10374Y	PQGT10348Y	Name Plate	1	
18	PQQT10292Z	PQQT10320Z	Label, Adaptor	1	
Accessorie	s and Packing Material	S			
A1	KX-A10	KX-A11BSXG	AC Adaptor	1	
A3	PQQW10281Z	PQQW10320Z	Instruction Book (German)	1	
A4	PQQW10241Z	PQQW10375Z	Leaflet	1	
A5	PQQX10283Z	PQQX10379Z	Instruction Book (German)	1	
A6		PQQX10322Z	Instruction Book (English)	1	
P1	PQPK10264Z	PQPK10334Z	Gift Box	1	
P9		PQPH10010Z	Protection Cover	2	Addition

#### **■ OPTIONAL ACCESSORY [Original Page 2]**

Note: These optional accessories are available through sales route of Panasonic.

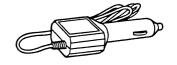


**Battery Case for** AA Alkaline Batteries



KX-G38X

Rechargeable Nickel Hydride Battery Pack



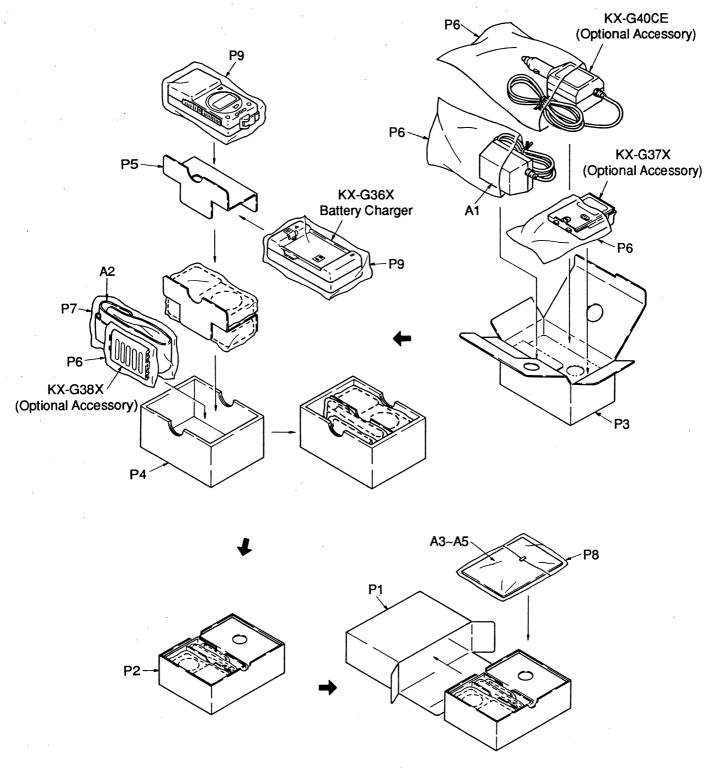
KX-G40CE

**Battery Charger** 

(Model KX-G5500G)

# Panasonic

# **ACCESSORIES AND PACKING MATERIALS**

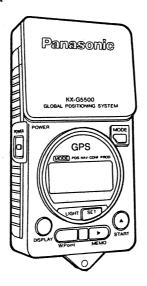


(Model KX-G5500G)

# Service Manual

HANDHELD GPS RECEIVER

KX-G5500



#### **■ SPECIFICATIONS**

# Main Unit (KX-G5500)

Receiving Method	5 Channels, Parallel Receiving (1575.42 MHz)
Receiving Sensitivity	-130 dBm
Position Accuracy	15 mRMS (GDOP≦6) Position accuracy may be degraded up to 328 feet 2D RMS under the control of the U.S. Department of Defense.
Display Type	2 Lines, 7 Segments, Liquid Crystal Display
Memory Back-up	5 Years (Internal Lithium Battery)
Ambient Temperature	14°F~122°F (-10°C~50°C)
Power Supply	Rechargeable Battery (Lasting Time: Approx. 80 minutes in Continuous Use, at 68°F) 5 AA Alkaline Batteries (Battery Life: Approx. 300 minutes in Continuous Use, at 68°F)
Dimensions (Width×Depth×Height)	29/16"×13/8"×55/32"  (When using Rechargeable Battery, not including projecting parts)  29/16"×21/16"×55/32"  (When using Alkaline Batteries, not including projecting parts)
Weight	Approx. 0.53 lbs. (Main Unit) Approx. 0.72 lbs. (When using Rechargeable Battery) Approx. 0.93 lbs. (When using Alkaline Batteries)

# **Panasonic**

# **Battery Charger (KX-G36)**

Ambient Temperature	50°F~95°F (10°C~35°C)
Dimensions (Width×Depth×Height)	2 <sup>19</sup> / <sub>32</sub> "×1 <sup>11</sup> / <sub>32</sub> "5 <sup>1</sup> / <sub>8</sub> "
Weight	Approx. 0.22 lbs.

Design and specifications are subject to change without notice.

When you mention the serial number, write down all 11 digits. The serial number may be found on the label affixed to the bottom of the unit.

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# **OPTIONAL ACCESSORY**

Note: These optional accessories are available through sales route of Panasonic.



Battery Case for AA Alkaline Batteries



KX-G38

Rechargeable Nickel Hydride Battery Pack



KX-G40

**Battery Charger** 

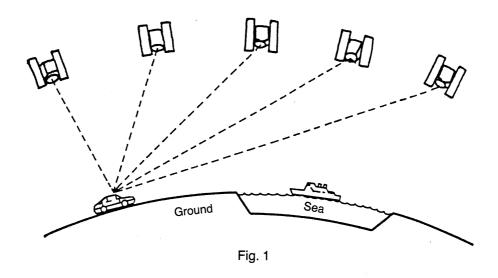
# **GPS TECHNOLOGY**

#### **GPS Satellites**

GPS satellites are orbiting the earth at an altitude of 20,000 km (12,427 miles) by the U.S. Department of Defense. GPS is the system that receivers on the ground, on the sea or in the air can receive signals from 3–4 satellites to calculate an accurate position (latitude, longitude, altitude).

When all the 24 satellites are launched and configurated on 6 orbits (each orbit has 4 satellites), this system will be fully implemented. Measurement may not be done all the time, because enough satellites have not been orbiting yet and because GPS satellites are orbiting satellites. When 24 satellites are launched, measurement will be done anytime.

GPS signal will not be received if there is an object between the satellites and a receiving antenna because GPS signal has a similar quality to light.



- \*GPS satellites are operated and controled by the U.S. Department of Defense. Position Accuracy may be changed. Eighteen satellites have been operating since August of 1992.
- Depending on the configuration of the GPS satellites, the displayed data may not be the same as actual latitude, longitude and altitude. [Altitude may differ ±0.1 M (150 m).]

## Measurement







Fig. 2

#### A good place for measurement

An open-air place where you can see all over the sky with no obstacles.

(Measurement can not be done indoors.)

Measurement may not be done where there is a strong electric wave near a broadcasting antenna.

#### **Direction of Antenna**

Place the antenna horizontally.

This unit can receive signals from satellites above an angle of 10 degrees elevation.

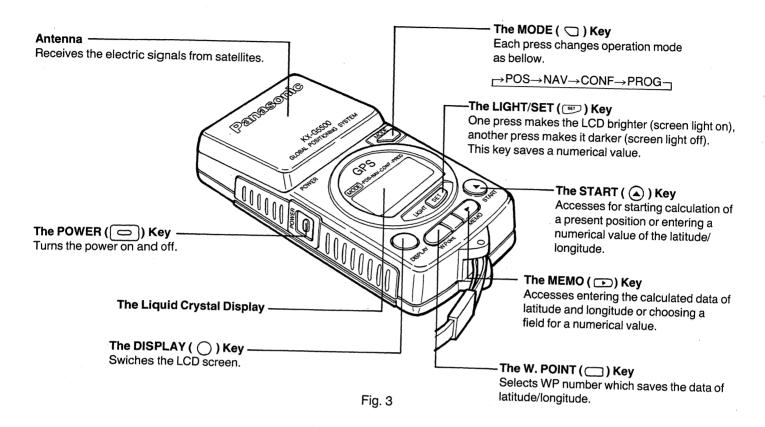
#### **Notice of Measurement Time**

Measurement can not be done for some period of time a day because not enough GPS satellites are orbiting to calculate all the time.

Measurement impossible time changes always because GPS satellites are orbiting.

# **LOCATION OF CONTROLS**

## Operation



#### **Display Screen**

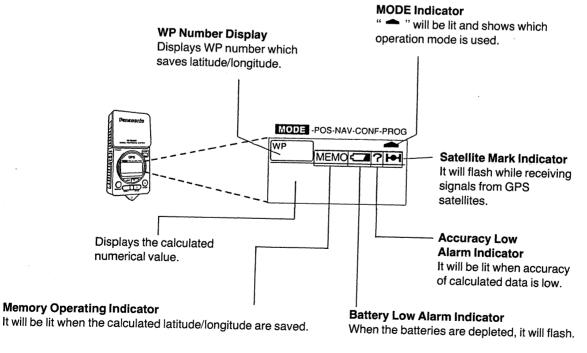
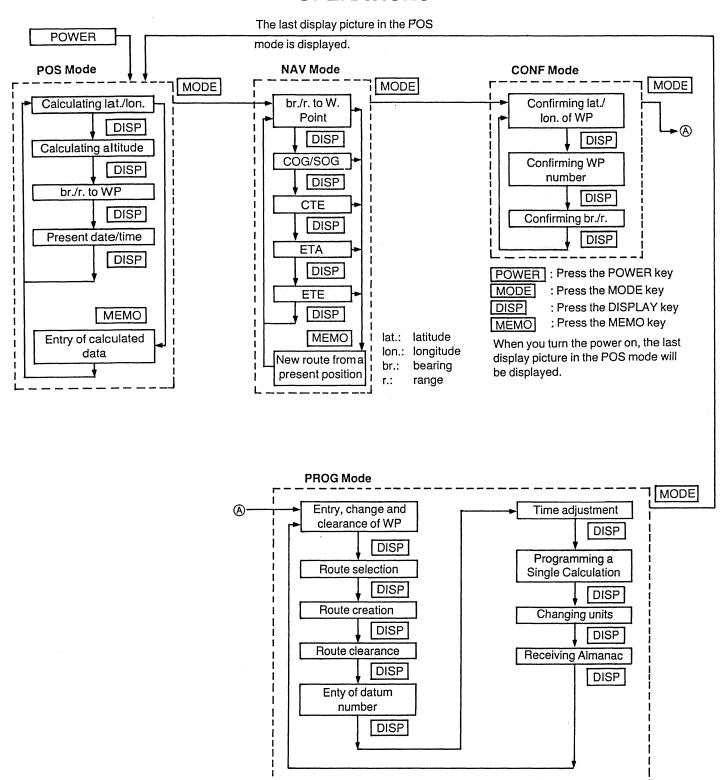


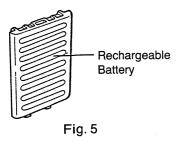
Fig. 4

# **OPERATIONS**



### INSTALLATION

# Installing the Rechargeable Battery

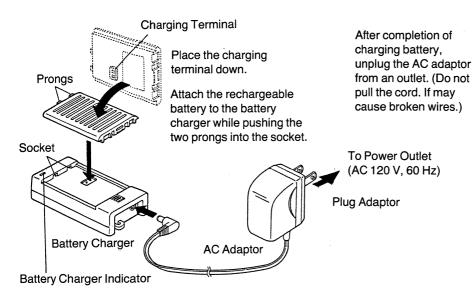


- Charge the rechargeable battery by using the supplied battery charger before use.
- After completion of charging battery, this unit will function for approx. 80 minutes. [continuous use, screen light is off, ambient temperature at 68°F (20°C)].
- •Nickel Hydride Battery is used for the rechargeable battery.

## **Charging the Rechargeable Battery**

Changing the battery for approx. 10 hours at temperature  $50^{\circ}F \sim 95^{\circ}F$  ( $10^{\circ}C \sim 35^{\circ}C$ ). To prevent overcharging, the battery charger indicator will go out in 15 hours and stop charging.

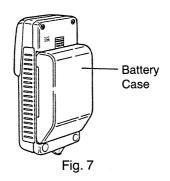
#### With AC Adaptor



- •Use the supplied AC Adaptor for this unit.
- •Using a different AC Adaptor will cause malfunction.

Fig. 6

# **Installing Alkaline Batteries**



- •This unit will function for approx. 300 minutes by using 5 AA alkaline batteries.
- [Continuous use with Panasonic alkaline batteries, screen light is off, at 68°F (20°C)]
- •We recommend you to use alkaline batteries which last long. AA Alkaline Battery (LR6 1.5 V)
- This unit will function for approx. 120 minutes by using manganese batteries.

[Continuous use with Panasonic batteries, at 68°F (20°C)]

# Installing Alkaline Batteries into Battery Case

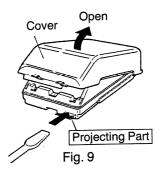
1



Fig. 8

Loosen the screw on the back side of the battery case.

2



Open the cover of the battery case slightly by using something like a screwdriver.

Push the projecting part and remove the battery case in the direction of the arrow.

3



Fig. 10
Install batteries in accordance with the correct polarity

indication on the battery case.

4

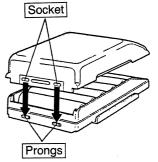


Fig. 11

Place the cover on the battery case by putting the prongs into the socket.

5



Fig. 12

Screw firmly on the back side of the battery case.

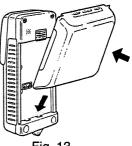
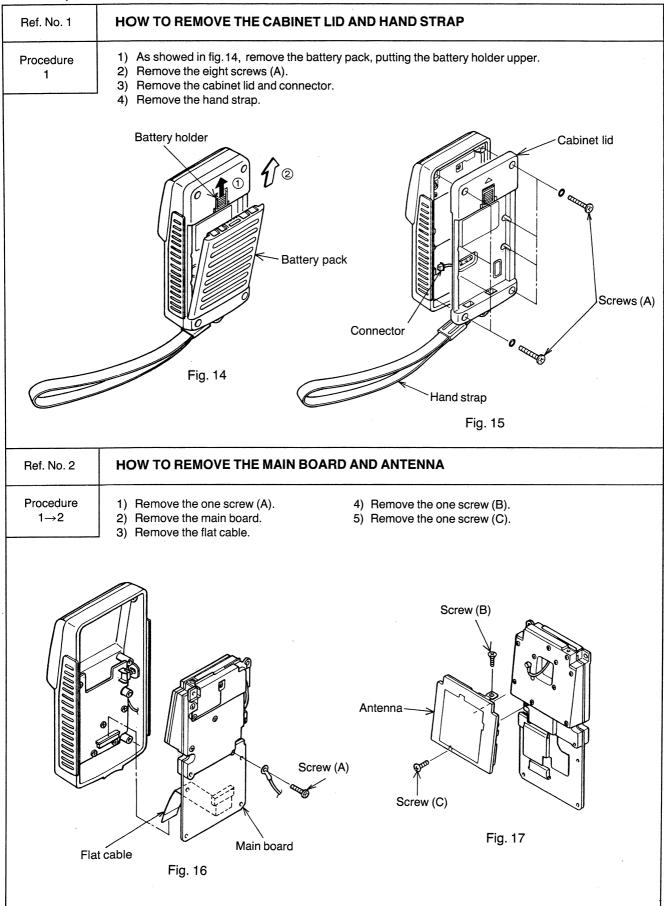


Fig. 13

Attach the battery case to the main body. Push the battery case until the click sound is heard.

# **DISASSEMBLY INSTRUCTIONS**

# 1. UNIT (KX-G5500)



Ref. No. 3	HOW TO REMOVE THE OPERATION BOARD
Procedure 1→2→3	Remove the nine screws (A).     Remove the operation board.
	Operation board Screws (A)
Ref. No. 4	Fig. 18  HOW TO REMOVE THE CABINET
Procedure 1→2→3→4	Remove the every button from cabinet.     Replace the cabinet.
	Every button Fig. 19

CHARGE	BOARD (KX-G36) HOW TO REMOVE THE CABINET AND CHARGE BOARD	
Ref. No. 1	HOW TO REMOVE THE CABINET 7	
Procedure 1	<ol> <li>Remove the two screws (A).</li> <li>Remove the lower cabinet.</li> <li>Remove the charge board, putting the latch to the direction of arrow.</li> </ol>	
	haard	
	Charge board	
	Lower cabinet	
	Latch	
•	Screws (A)	
	Fig. 20	

# **ADJUSTMENTS**

## Feedback Voltage of PLL Circuit

At indoor temperature, measuring the feedback voltage (TP1A) of the low pass filter output with the Digital Voltmeter, rotate C244 with adjusting driver and set the feedback voltage DC 3 V.

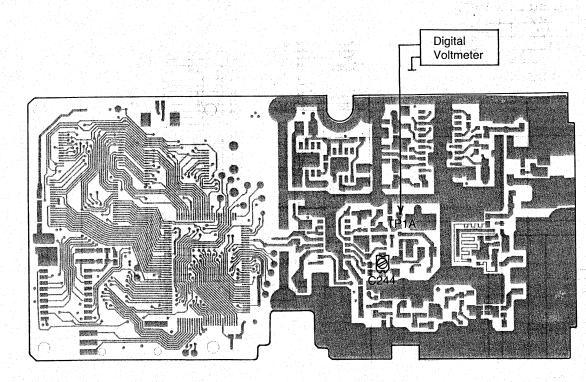


Fig. 21

#### **Center Frequency of IFT**

Connect CN301 with the signal generator output, and the 1st IF amp output (TP2A) with the spectrum analizer via resistor 5.6 k $\Omega$ . Set the spectrum analizer at fcent=18.414 MHz/span=10 MHz/reference level=-40 dBm/MAX hold mode.

And set the signal generator at fcent=1575.42 MHz/output level=-70 dBm and apply the auto-sweep at sweep range=10 MHz. And confirm the frequency character of IFT appearing at the spectrum analizer a few minutes after, if its center frequency is higher than 18.414 MHz, turn the core of L303, L304 left, and if it's lower than 18.414 MHz, turn the core of L303, L304 right with adjusting driver. After then, clear the display of the spectrum analizer and confirm the frequency character again. Do such action over again to set the center frequency of IFT 18.414 MHz. Take care of treating core because it's easy to be destroyed.

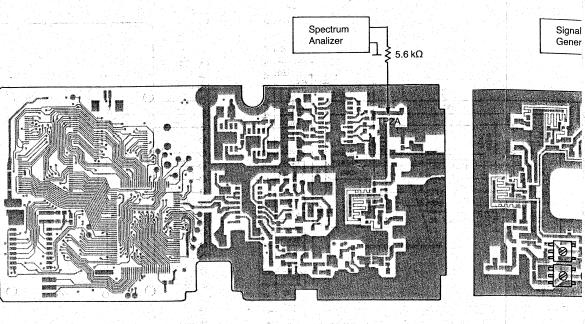


Fig. 22

## **Oscillating Frequency of Temperature Compensating Oscillator**

At indoor temperature, connect IC202-6P to the frequency counter via capacitor, and rotate the trimmer capacitor of the temperature compensating Oscillator (X201) to adjust the frequency at 16.368000 MHz.

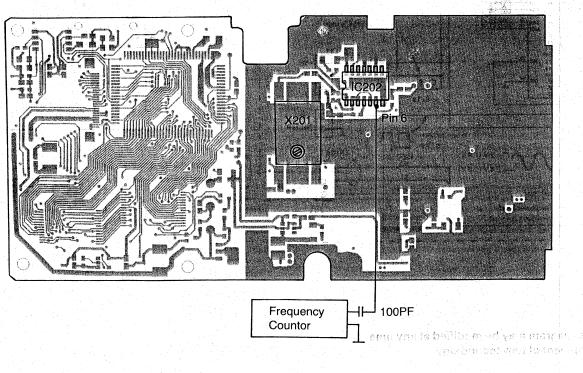


Fig. 23

Note: Si

Pin No.

71, 75

82 84 68

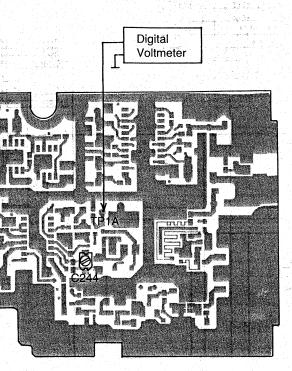
36 3~5, 7~15, 17~26,

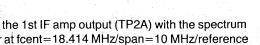
28~35 45 46~49

39~42

21

ge (TP1A) of the low pass filter output with the Digital e feedback voltage DC 3 V.





autput level = -70 dBm and apply the auto-sweep at aracter of IFT appearing at the spectrum analizer a in 18.414 MHz, turn the core of L303, L304 left, and if 4 right with adjusting driver. After then, clear the lency character again. Do such action over again to be of treating core because it's easy to be destroyed.

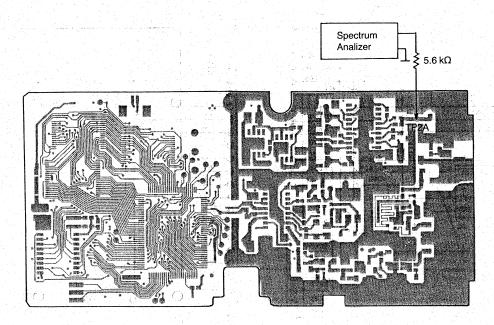


Fig. 22

# **Oscillating Frequency of Temperature Compensating Oscillator**

At indoor temperature, connect IC202-6P to the frequency counter via capacitor, and rotate the trimmer capacitor of the temperature compensating Oscillator (X201) to adjust the frequency at 16.368000 MHz.

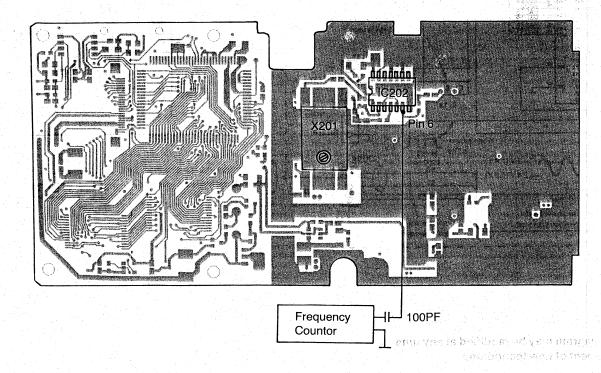


Fig. 23

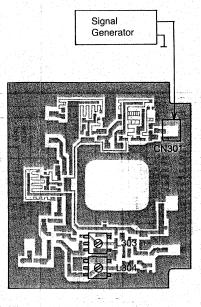
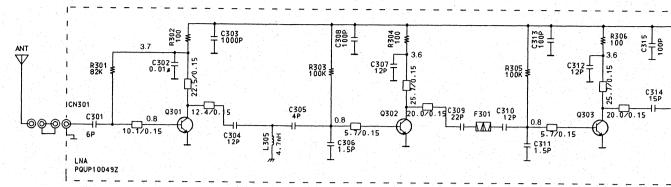


Fig. 24

Note: Signal names are prefixed by not if they are active low, otherwise they are active high.

Pin No.	Mark	1/0	Function	Pin No.	Mark	1/0	Function
	V∞, GND		Power supply and	50	notMemRf	out	Dynamic memory
		44.	return	10.121.23			refresh indicator
71, 75	CapPlus,		External capacitor for	72	RefreshPending	out	Dynamic refresh is
	CapMinus		internal clock power				pending
			supply	51	MemWait	in	Memory cycle
74	ClockIn	in	Input clock				extender
1, 77, 80	ProcSpeedSelect0-2	in	Processor speed	53	MemReq	in	Direct memory
			selectors				access request
83	Reset	in	System reset	52	MemGranted	out	Direct memory
81	Error	out	Error indicator				access granted
79	ErrorIn	in	Error daisychain input	54	MemConfig	in	Memory configuration
2	Analyse	in	Error analysis				data input
82	BootFromRom	in	Boot from external	55	EventReq	in	Event request
			ROM or from link	57	EventAck	out	Event request
84	DisableIntRAM	in	Disable internal RAM				acknowledge
68	ProcClockOut	out	Processor clock	73	EventWaiting	out	Event input requested
37	MemnotWrD0	in/	Multiplexed data bit 0	The Late of the			by software
		out	and write cycle	58, 60,	Linkln0-3	in	Four serial data input
			warning	62, 64			channels
36	MemnotRfD1	in/	Multiplexed data bit 1	59, 61,	LinkOut0-3	out	Four serial data
		out	and refresh warning	63, 65			output channels
3∼5,	MemAD2-31	in/	Multiplexed data and	70	LinkSpecial	in	Select non-standard
7~15,		out	address bus				speed as 5 or
17~26,							20 Mbits/sec.
28~35				69	Link0Special	in	Select special speed
. 45	notMemRd	out	Read strobe	n va concigi	98. 41-14.	: iduffy	for Link 0 2 1 (2010)
46~49	notMemWrB0-3	out	Four byte-addressing	(¦⇔ ∂67 )	Link123Special	in	Select special speed
		0	write strobes	a milegatiov		EWHC)	for Links 1, 2, 3
39~42,	notMemS0-4	out	Five general purpose	ntiovolnod.	ele .	1.00	
44			strobes	SHOT CAR	rada di lacia della di	del del	wa mate Jaka Bi - Li

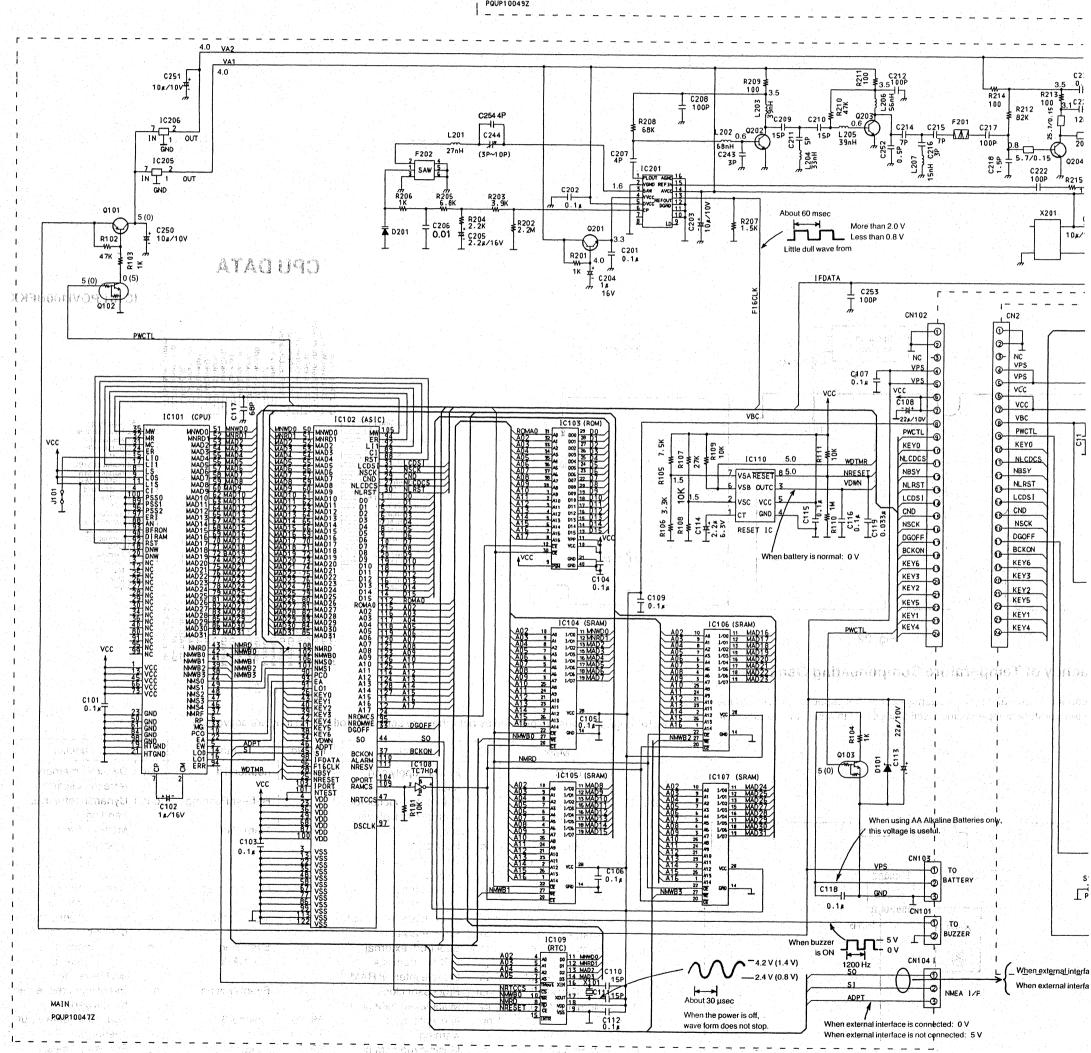
# **SCHEMATIC DIAGRAM (KX-G55)**



This schematic diagram may be modified at any time

ES pril

with the development of new technology.



Notes: 1. S1: Power switch.

Science Inches

นโป๊บัส วิสินผัส AC AMELIGISH CA card only and the ye

2. S2: Mode switch.

3. S3: W. Point switch.

4. S4: Display switch. 5. S5: Start switch.

6. S6: Memo switch.

TIP S7: Light/Set switch. Set Seven Seven up 1 two

8. DC voltage measurements are taken with electronic voltmeter from negative voltage line.

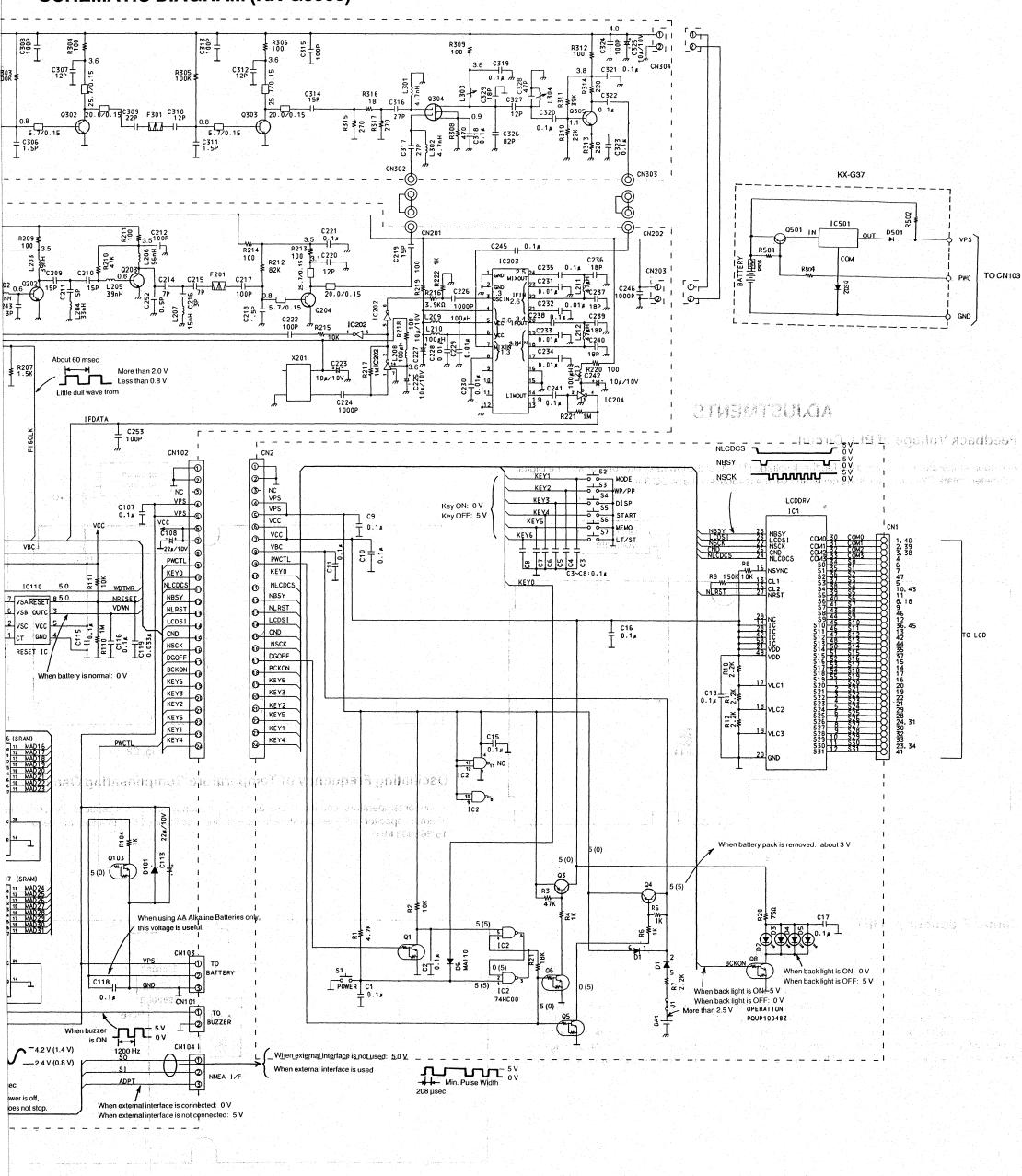
sould be a selected as a second

Helder Dasifi.

( ): Power switch OFF

No Mark: Power switch ON

# **SCHEMATIC DIAGRAM (KX-G5500)**



may be modified at any time \_\_\_\_

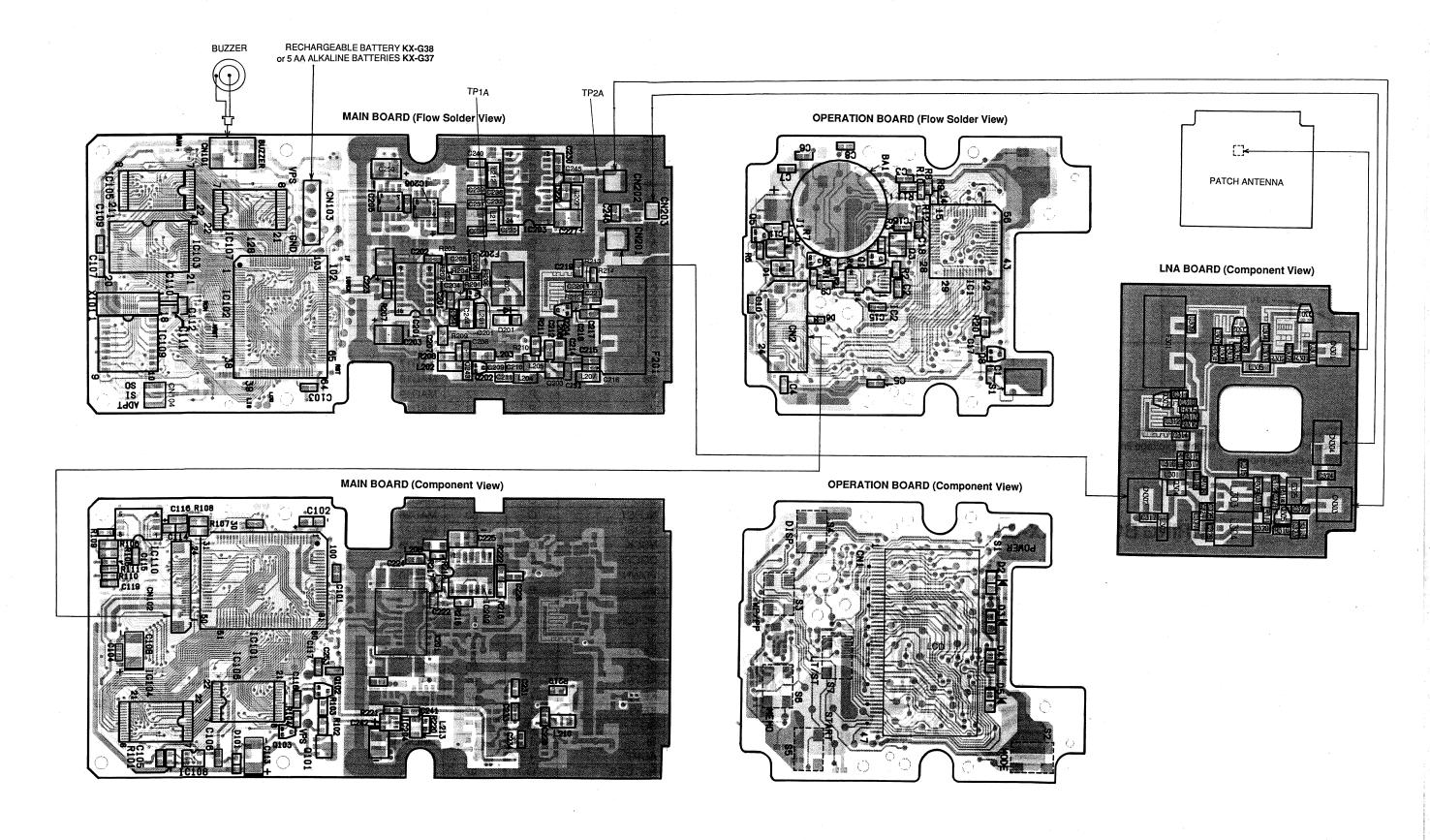
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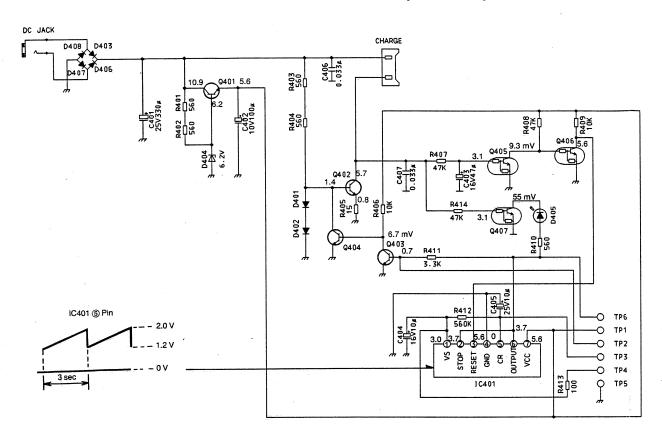
KX-G5500

KX-G5500

# **CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM (KX-G5500)**



# **SCHEMATIC DIAGRAM (KX-G36)**

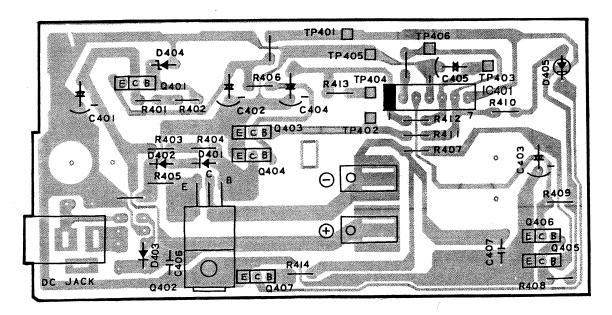


Notes: 1. DC voltage measurements are taken with electronic voltmeter from negative voltage line. with the development of new technology. Battery charge mode.

This schematic diagram may be modified at any time

# **WIRING BOARD (KX-G36)**

## **Component View**



# ASIC, LCD AND CONNECTOR DATA

No.

101

102

103

104

105

106

107

108

109

110

111

112

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114

115

116

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118

119

120

121

122 123

124

125

126

127

128

NTEST

NMWB0

IPORT

OPORT

MW

NMS0

NMS1

NMRD

RAMCS

ALARM

NRESV

ROMAO

 $V_{ss}$ 

A12

A02

A03

A04

A05

A06

A07

A08

 $V_{ss}$ A09

A13

A11

A10

A15

A14

102

Type

0

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65

#### TABLE 1

#### IC102 PQVI1039F0F

No.	Pin	Type	No.	Pin	Туре
1	D0	В	51	MNRD1	В
2	D1	В	52	MAD2	В
3	Vss	Р	53	MAD3	В
4	V <sub>DD</sub>	P	54	MAD4	В
5	D2	, В	55	MAD5	В
6	D3	В	56.	MAD6	В
7	D4	В	57	MAD7	В
8	D5	В	58	Vss	Р
9	D6	В	59	MAD8	В
10	D7	В	60	MAD9	В
11	A16	0	61	MAD10	В
12	A17	0	62	MAD11	В
13	Vss	Р	63	MAD12	В
14	D15	В	64	MAD13	В
15	D14	В	65	MAD14	В
16	D13	В	66	MAD15	В
17	D12	В	67	Vss	Р
18	D11	В	68	V <sub>DD</sub>	Р
19	D10	В	69	MAD16	В
20	D9	В	70	MAD17	В
21	D8	В	71	MAD18	В
22	Vss	Р	72	MAD19	В
23	V <sub>DD</sub>	P	73	MAD20	В
24	NROMCS	0	74	MAD21	В
25	NRESET		75	MAD22	В
26	KEY0	i	76	MAD23	В
27	NLCDCS	Ö	77	Vss	P
28	NBSY		78	MAD24	В
29	CND	0	79	MAD25	В
30	NLRST	O	80	MAD26	В
31	LCDSI	O	81	MAD27	В
32	NSCK	0	82	MAD28	В
33	DGOFF	0	83	MAD29	В
34	VDWN	i	84	MAD30	В
35	Vss	P	85	MAD31	В
36	V <sub>DD</sub>	P	86	Vss	P
37	BCKON	0	87	V <sub>DD</sub>	P
38	KEY6		88	RST	0
39	KEY3	i	89	CI	0
40	KEY2	i	90	PCO	
41	KEY5		91	LO1	
42	KEY4		92	LI1	0
43	KEY1	1	93	EA	
43	SO	0	93	ER	0
				NROMWE	0
45	SI		95		
46	ADPT		96	F16MCK	
47	NRTCCS	O P	97	DSCLK	0
48	Vss		98	IFDATA	
49	V <sub>DD</sub>	P	99	Vss	P
50	MNWD0	В	100	V <sub>DD</sub>	P

P: Power, GND I: Input B: Bidirection 103 IC102 39 128 38

Simultaneous Transition

- •bidirectional bus
- MNWD0, MNRD1, MAD2~MAD31 (32)
- •bidirectional bus D0~D15 (16)
- •bidirectional bus A02~A17 (16)

# **TABLE 2. LCD CONNECTION**

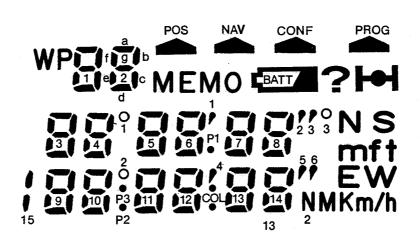
SEG	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
СОМО	1a	1f	2a	2f	За	3f	4a	4f	5a.	5f	6a	6f	7a	7f	8a	8f
COM1	1b	1g	2b	2g	3b	3g	4b	4g	5b	5g	6b	6g	<b>7</b> b	7g	8b	8g
COM2	1c	1e	2c	2e	3c	3e	4c	4e	5c	5e	6c	6e	7c	7e	8c	8e
СОМЗ	WP	1d	POS	2d	мемо	3d	12	4d	NAV	5d	11'2	6d	BATT	7d	'3	8d

SEG	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
COM0	9a	9f	10a	10f	11a	11f	12a	12f	13a	13f	14a	14f	3	S	ft	?
COM1	9b	9g	10b	10g	11b	11g	12b	12g	13b	13g	14b	14g	N	m	W	HH
COM2	9c	9e	10c	10e	11c	11e	12c	12e	13c	13e	14c	14e	N <sup>2</sup>	E	/h	PROG
COM3	15bc	9d	COL	10d	•P1	11d	•P2	12d	'6	13d	'4'5	14d	М	km	•P3	CONF

# TABLE 3. LCD PIN NO.

No.	PIN	No.	PIN	No.	PIN	No.	PIN
1	COM0	13	SEG11	25	NC	37	SEG15
2	COM1	14	SEG17	26	NC	38	COM2
3	COM2	15	SEG16	27	NC	39	COM1
4	COM3	16	SEG19	28	SEG25	40	COM0
5	SEG3	17	SEG18	29	SEG24	41	SEG31
6	SEG0	18	SEG30	30	SEG27	42	SEG12
7	SEG1	19	SEG6	31	SEG26	43	SEG4
8	SEG6	20	SEG21	32	SEG28	44	SEG13
9	SEG7	21	SEG20	33	SEG29	45	SEG10
10	SEG4	22	SEG23	34	SEG30	46	SEG8
11	SEG5	23	SEG22	35	SEG14	47	SEG2
12	SEG9	24	SEG26	36	SEG10		

## **LCD DISPLAY**



# TABLE 4. CONNECTOR PIN LOCATION

# CN101 (Buzzer)

No.	Signal	Туре	Operation
1	ALARM	MAIN→BU	Alarm signal from gate array
2	GND	MAIN→BU	Ground

## CN103 (Battery)

No.	Signal	Туре	Operation	
1	VPS	MAIN←BATT	Power supply	
2	S	MAIN→BATT	Operation signal when using alkaline battery	
3	GND	MAIN←BATT	Ground	

# CN104 (NMEA I/F)

No.	Signal	Туре	Operation
1	so	MAIN→I/F	External interface output signal
2	SI	MAIN←I/F	External interface input signal
3	ADPT	MAIN←I/F	Adaptor detecting signal

### CN102-CN2

No.	Signal	Type	Operation
1	GND	MAIN→OP	Ground
2	GND	MAIN→OP	Ground
3	NC		No connect
4	VPS	MAIN→OP	Power source of system
5	VPS	MAIN→OP	Power source of system
6	VPS	MAIN←OP	Digital power source
7	VPS	MAIN-OP	Digital power source
8	VBC	MAIN←OP	Backup power source
9	PWCTL	MAIN <b>←</b> OP	Power control
10	KEY0	MAIN←OP	Signal of power key: OFF="H", ON="L"
11	NLCDCS	MAIN→OP	Chip select of LCD driver: "L"=select
12	NBSY	MAIN←OP	Busy signal from LCD driver: "H"=busy

No.	Signal	Туре	Operation	
13	NLRST	MAIN→OP	Reset signal of LCD	
14	LCDSI	MAIN→OP	Serial data input terminal for LCD	
15	CND	MAIN→OP	Command/data select signal for LCD	
16	NSCK	MAIN→OP	Serial clock for LCD	
17	DGOFF	MAIN→OP	OFF signal of digital power source: normal="1", off="H"	
18	BCKON	MAIN→OP	Burning signal of backlight for LCD	
19	KEY6	MAIN←OP	Signal of LT/ST key: OFF="H", ON="L"	
20	KEY3	MAIN←OP	Signal of DISP key: OFF="H", ON="L"	
21	KEY2	MAIN←OP	Signal of WP/PP key: OFF="H", ON="L"	
22	KEY5	MAIN←OP	Signal of MEMO key: OFF="H", ON="L"	
23	KEY1	MAIN←OP	Signal of MODE key: OFF="H", ON="L"	
24	KEY4	MAIN-OP	Signal of START key: OFF="H", ON="L"	

#### CN201-CN302

	No.	Signal	Туре	Operation
	1	1stLo	MAIN→RF	1st Local signal
ľ	2	GND	MAIN→RF	Ground

#### CN202-CN303

No.	Signal	Туре	Operation
1	1stlF	MAIN←OP	1st IF signal
2	GND	MAIN←RF	Ground

#### CN203-CN304

No.	Signal	Туре	Operation
1	VA2	MAIN	Analog power source
2	GND	MAIN→RF	Ground

#### ANT-CN301

No.	Signal	Туре	Operation
1	ANTOUT	ANT←RF	Antenna receiving signal
2	GND	ANT←RF	Ground

# CIRCUIT EXPLANATION

#### 1. GENERAL BLOCK DIAGRAM

The sumary GENERAL BLOCK DIAGRAM is shown in follow. This circuit can be devided mainly following 3 blocks.

#### 1) ANALOG SECTION

This block executes the frequency conversion to the signal inputted through antenna from satellite, makes frequency down to be able to be processed in digital section, after that, converts it to bainary signal.

This block is developed in RF board and upper half of Main board (shield section).

#### 2) DIGITAL SECTION

This block executes operation based on signal from analog section and ditects the present location of receiver, and holds 7 keys, LCD, buzzer, external interface (based on NMEA0183A) as method of input or output.

This block is developed in lower half of Main board and a part of Operation board.

#### 3) POWER SOURCE SECTION

This block controls the ON/OFF operation of power source needed for each analog and digital section.

This block is developed in Operation board and a part of Main board.

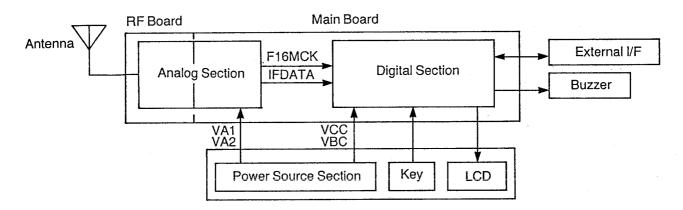


Fig. 25

# 2. DESCRIPTION OF CIRCUIT

Following is the description of mentioned 3 blocks.

#### 2-1. ANALOG SECTION

The Block diagram of analog section is shown in Fig. 26. The analog section consists of following 6 blocks.

- 1) Antenna
- 2) RF amplifier
- 3) 1st IF circuit
- 4) 2nd IF circuit
- 5) Reference signal divider circuit
- 6) 1st Local signal generator circuit

The power source of analog section supplies VA1 to the 1st Local signal generator circuit and the reference signal divider circuit except the local amp, and VA2 to the 1st IF circuit, the 2nd IF circuit and the local amp.

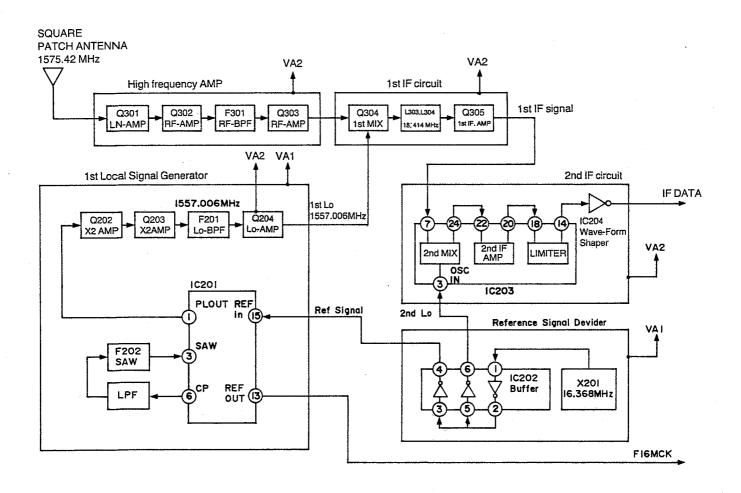


Fig. 26

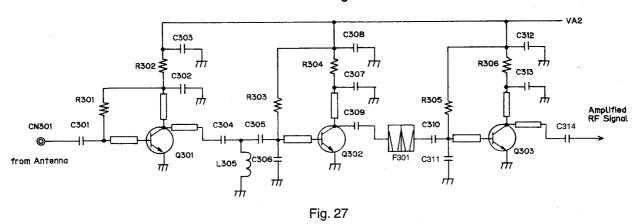
#### 1) Antenna

Use the square patch antenna to receive the GPS satellite electoric wave of 1575.42 MHz carrier frequency and output on RF board.

#### 2) RF amplifier

The RF amplifier consists of 3-phases amp and BPF filter. The RF signal which is inputted to CN301 from antenna is amplified by the wideband low noise amp (Q301) and RF amp (Q302), then narrowed the band pass 1575.42±1.023 MHz (within 3 dB attenuation band  $\pm$ 10 MHz) by the bandpass filter (F301), after that amplified by RF amp (Q303) in the following stage.

#### **Circuit Diagram**



#### 3) 1st IF circuit

As the 1st mixer (Q304), the dual gate FET is used. The source of FET is resistance grounded (R308) and applied to about  $-9\,\mathrm{V}$ 

By inputting the RF signal which is amplified via 3rd attenuator to gate 1, and injecting 1st local signal (1557. 006 MHz, 0 dBm) from CN302 to gate 2, the 1st IF signal which is converted into frequency of 18.414 MHz is gained in drain. After the band limit of 18.414 MHz ±1 MHz is applied to the 1st IF signal by IFT (L303, L304), the 1st IF signal is amplified by 1st IF amp (Q305) which is emitter grounded. The gained 1st IF signal is output from CN303 to Main Board.

#### **Circuit Diagram**

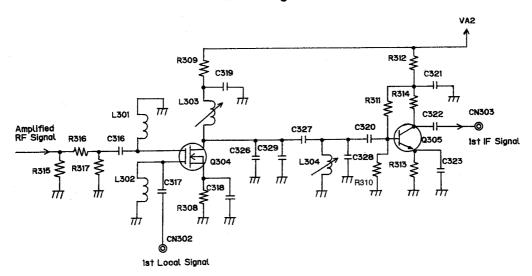


Fig. 28

4) 2nd IF circuit

As the 2nd IF circuit, IC203 which contained a mixer, IF amp and limiter amp is used. The 1st IF signal is input from RF board to CN202 of Main board. The 2nd Local signal of 16.368 MHz is inputted to OSCIN terminal (3P) and the 1st IF signal is inputted from CN202 to MIXIN terminal (7P), the 2nd IF signal of 2.046 MHz is gained in MIXOUT terminal (24P). The 2nd IF signal attenuates the 2nd Local signal which is leaking via LPF (C236, L211, C237) with cut-off frequency of 5 MHz, and then amplify it by inputting to AMPIN terminal (22P). After the 2nd IF signal which is output from AMPOUT terminal (20P) passes through LPF (L212, C239, C240), input it to LIMITIN terminal (18P). The about 6 Vp-p output of LIMITOUT terminal (14P) is made binary by the wave form shapor (IC204), hence the digital signal (IFDATA) that low level is less than 0.8 V and high level is more than 2 V, is output to ASIC (IC102).

#### **Circuit Diagram** IC203 R219 R222 C236 C235 L211<sub>C237</sub> R220 C226 2nd Local Signal 21 1 C232 C239 20 C238 L213 19 C233 6 L212 C240 210 CN202 18 C234 17 1st IF Signal C227 C228 8 16 IC204 15 C241 IF Data. 13 R221 Fig. 29

5) Reference signal divider circuit

The signal of 16.368 MHz which is generated by the temperature compensating oscillator (X201) is divided by inverter (IC202), the standard signal of 2 Vp-p is output to IC201, and the 2nd Local signal of 3 Vp-p is output to IC203. And then, the clock (F16MCK) that low level is less than 0.8 V and high level is more than 2 V is output to ASIC (IC202) after buffering by IC201.

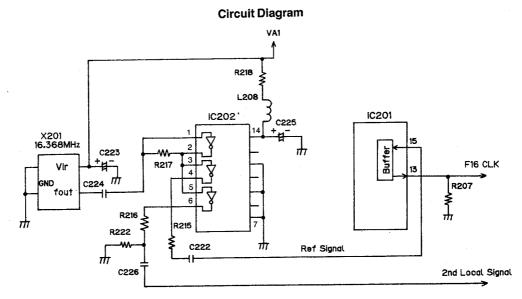
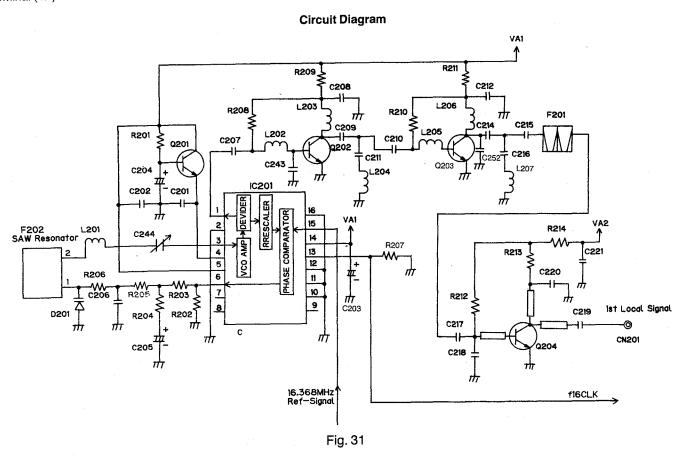


Fig. 30

6) 1st Local signal generator circuit

The 1st Local signal generator circuit consists of PLL circuit, 2-stage 2 multipliers, BPF and a local amp. PLL circuit consists of IC201 of PLL-IC which contains VCO amp, a dividing amp, a prescaler and a phase comparator, a variable capacitor (D201) which constructs the low pass filter and VCO in discrete and SAW resonator. IC201 compares the phase of reference signal of 16.368 MHz which is input to REFIN terminal (15P) with the prescaler output, then output the result of phase comparation from CP terminal (6P). The CP output is multipled by the low pass filter and the feedback voltage is given to SAW resonator. The output of SAW resonator is input to SAW terminal (3P) via L201 and C244 for feedback voltage adjusting to oscillate the VOC, and output to prescaler and PLOUT terminal (1P) by dividing amp. When PLL circuit is lockin, the 1/4 Local signal of 389.2515 MHz • -8 dBm is gained at PLOUT terminal (1P). The 1/4 Local signal is multipled by 4 using 2 stage 2 multipliers (Q202, Q203), limited the band by BPF (F201) of 1557.006 MHz, amplified to 0 dBm by local amp (Q204), and output from CN201 to RF board. But the ripple filter (Q201) is inserted at the front place of Vvco terminal (4P) of IC201.

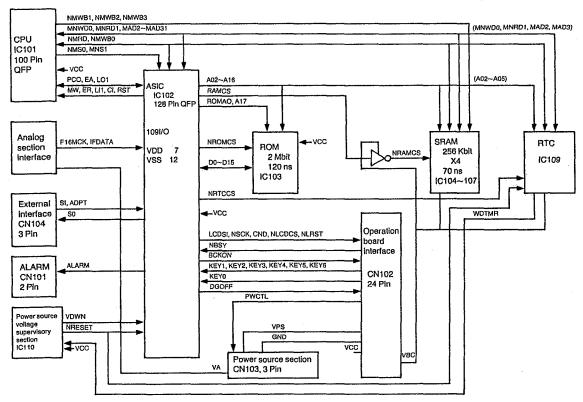


## 2-2. Digital Section

The Block Diagram of Digital Section is shown in Fig. 32, 33.

After dividing this section as following main 8 blocks, each block is explained.

- 1) CPU peripheral section
- 2) Satellite homing section
- 3) RTC (Real Time Clock) section
- 4) Power source voltage supervisory section
- 5) LCD control section
- 6) External interface control section
- 7) Key control section
- 8) Buzzer control section



NC IPORT, OPORT, NRESY, DSCLK, NROMWE, NTEST

Fig. 32

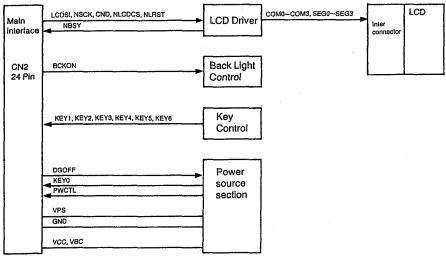


Fig. 33

#### 1) CPU peripheral section

The CPU peripheral section consists of CPU (IC101), ROM (IC103), RAM (IC104~107) and the ASIC (IC102).

As to memory access of CPU, ASIC includes the address latch, address decord and wait control function of CPU. As to ROM access especially, convertion from 16 bit to 32 bit is executed by ASIC.

As showing in follow Fig. 34, the drive clock of CPU (CI: 4 MHz) is generated by dividing the fundamental clock (F16MCK: 16 MHz) which is input from the analog section by 4 at ASIC. Then, CPU multiples it by 4 and returns the timing synchronous clock (PCO: 16 MHz) to ASIC.

The pin location of ASIC is shown in Table 1 (Page 15).

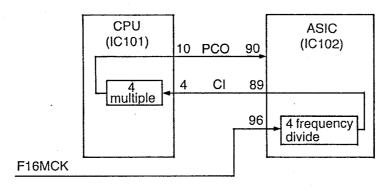


Fig. 34

#### 2) Satellite homing section

Based on the signal (IFDATA) which is input from the analog section, the operation necessary for satellite homing is executed in ASIC, and the result is translated to CPU as data using the serial link. (Refer to following Fig. 35.) CPU executes the position operation based on receiving data and outputs the result to LCD.

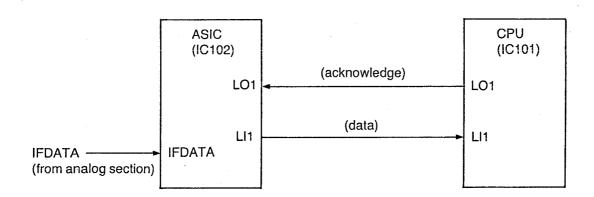


Fig. 35

#### 3) RTC (Real Time Clock) section

The Real Time Clock IC (IC109) starts the clock operation by being written the correct time which is obtained by measuring once. As the oscillator for clock (X101) isn't stop and keeps clock operation when the power source is OFF because the power source is connected with the backup power source (VBC). CPU can read out the correct time when the power source became ON after then. Also, as including the speed detecting timer inside, when CPU runs away and doesn't clear in certain time, the WDTMR signal is output to the power source voltage supervisory IC (IC3), therefore the same IC resets the whole system.

#### 4) Power source voltage supervisory section

The power source voltage supervisory IC (IC110) supervises the power source voltage ( $V_{\infty}$ ), and includes functions which detects the power source voltage is under the reset voltage (4.1 V) to resets whole system via ASIC and it is under the battery mark lights voltage (4.3 V) that shows the power source voltage becomes low and informs via ASIC to CPU.

Both the reset voltage and the battery mark light voltage can be controlled minutely by the external register of the same IC, also the reset time can be controlled as same by external capacitor.

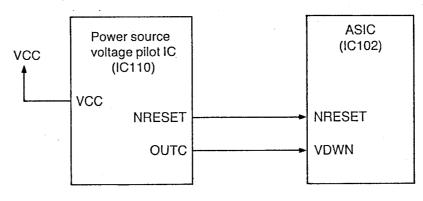


Fig. 36

#### 5) LCD control section

The LCD Display data which is written with byte-type from CPU to ASIC was executed parallel-serial conversion at ASIC and sended to LCD driver (IC1) via connector (CN102). The LCD driver divides the inputted display data into common and segment and supplies them to LCD via the inter connector.

The back light of LCD (4 LCDs) controls the ON/OFF operation using of the port setting from CPU to ASIC.

The connections of LCD are shown in Tables 2, 3. And the pin No. of inter connectors are shown in Table 4 (Page 17, 18).

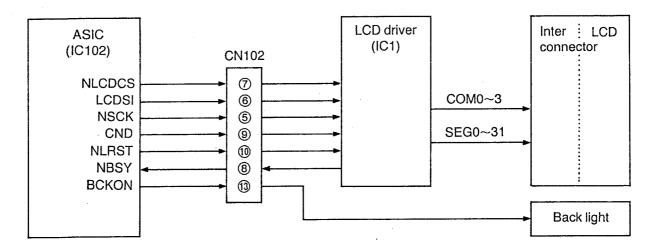


Fig. 37

## 6) External interface control section

When connecting the optional interface board to connector (CN104), the serial interface based on NMEA 0183A can be used. A portlate can be input and output at 4800 bps.

When outputting, ASIC executes parallel-serial conversion of data from CPU and outputs external, and when inputting, ASIC executes serial-parallel conversion of the data from external and outputs to CPU. But to make the external interface function enable, the ADPT signal must be fixed low.

The optional interface board fixes the ADPT signal low, and also includes the function which converts the voltage level of 2 signal lines.

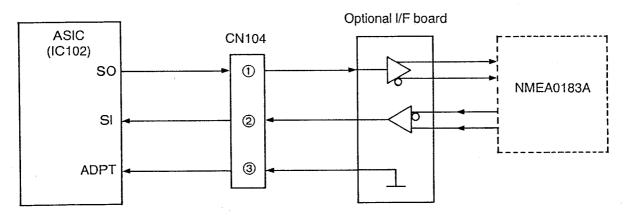


Fig. 38

#### 7) Key control section

The 7 key inputs from the operation board are all fetched to ASIC via connector (CN102) in following diagram, and read to CPU after excepting chattering.

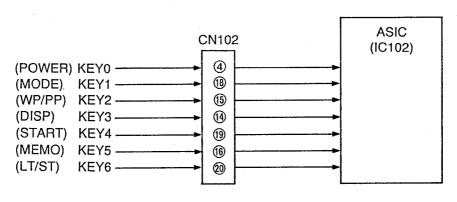


Fig. 39

#### 8) Buzzer control section

The buzzer signal (5 V: 1200 Hz) is generated in ASIC and controlled ON/OFF operation by CPU.

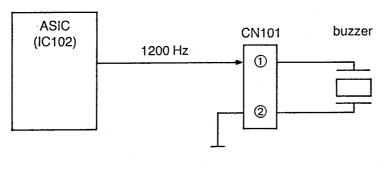


Fig. 40

#### 2-3. Power Source Section

The power source section circuit is developed in the operation board and one portion of the main board, and the power source is supplied by connecting the battery pack (Ni-H Battery pack or AA Alkaline Battery pack) to the unit.

The composition of the power source section circuit makes each the analog power source VA, digital power source VCC and backup power source VBC from the supplied voltage VPS from the battery pack, and makes 2 analog power source VA1, VA2 from the analog power source VA via 2 regulator ICs (IC203, IC204). These power sources are switched ON/OFF by pressing the POWER key to control the PWCTL (Power Control) signal.

However, the backup voltage VBC is supplied about 5 V when installing the battery pack, and supplied about 3 V when removing it.

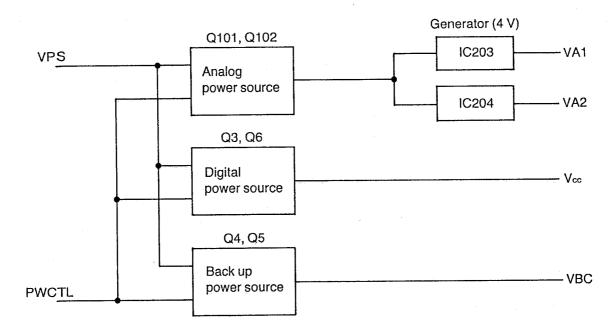
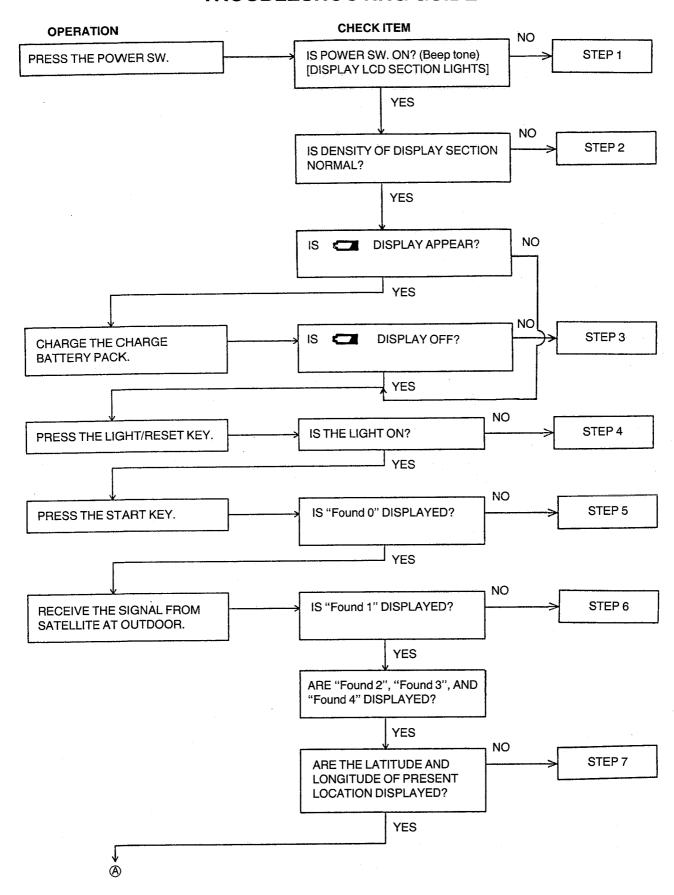
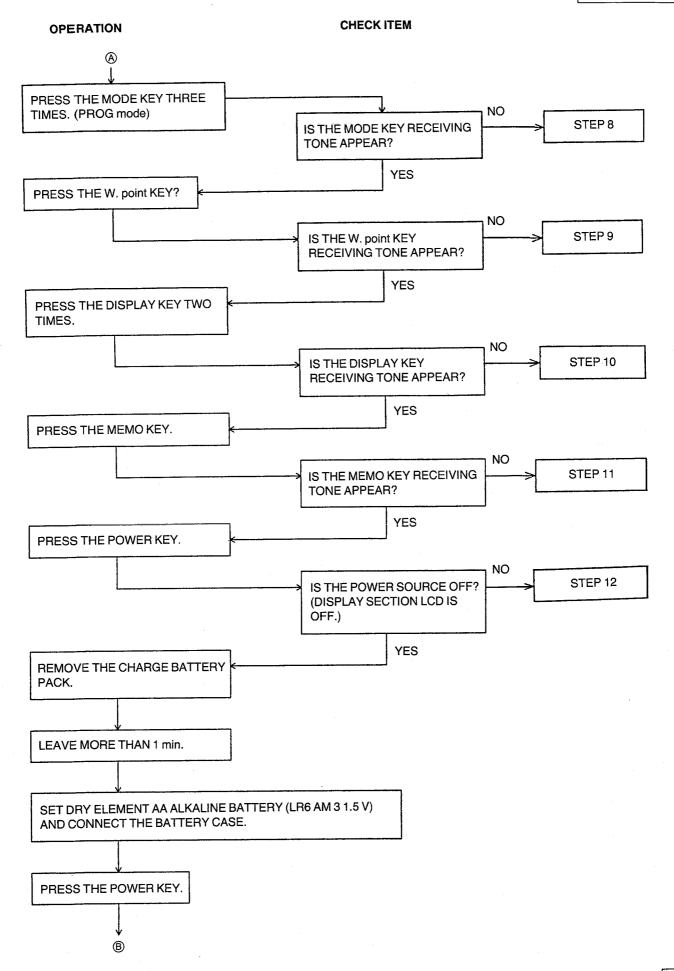
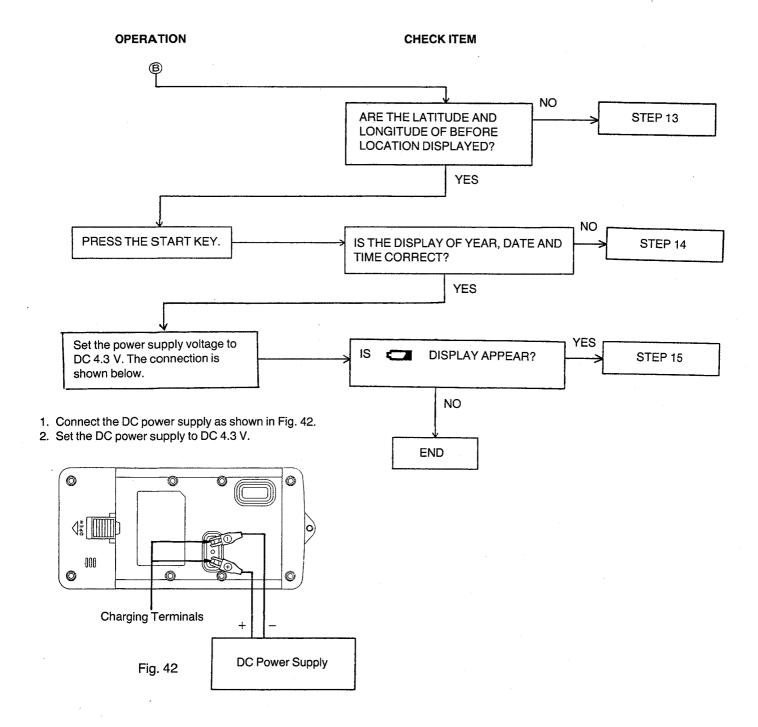


Fig. 41

# **TROUBLESHOOTING GUIDE**







# STEP 1: NO POWER/LCD DOES NOT LIGHT/NO BUZZER.

#### Major Causes:

- 1) The power source voltage is low.
- 2) The battery terminal (CN103) between battery pack and unit is defective contact.
- 3) The harness and connector between Main Board and Operation Board are defective connection (CN102, CN2).
- 4) The harness of flex between Main Board and Operation Board is breaking of wire.
- 5) Installation of POWER button is failure.
- 6) Operation Board is failure (Power source section).
- 7) The inter connector of LCD is defective connection.
- 8) Operation Board is failure (LCD and peripherals).
- 9) Connection between Main Board and Buzzer is failure (CN101).
- 10) Failure of buzzer
- 11) Failure of Main Board

#### Checks and Repairs:

1) Connect the power source to the unit and confirm the voltage of VPS in a state of pressing the power button.

#### **Check Point**

CN103 PIN1 (VPS)~PIN3 (GND)

Voltage more than 4.4 V

If it is abnormal, raise the power source voltage. In the case the VPS voltage doesn't rise yet after that, it judged that either Operation Board or Main Board is failure.

- 2) Confirm that the electrode of CN103 comes in contact with the electrode of battery pack firmly.
- 3) 4) Use the digital voltmeter to confirm that Main Board connects with Operation Board firmly.

#### **Check Point**

CN102 PIN1, 2—CN2 PIN1, 2 (conductive test)
CN102 PIN4, 5—CN2 PIN4, 5 (conductive test)
CN102 PIN6, 7—CN2 PIN6, 7 (conductive test)
CN102 PIN8 —CN2 PIN8 (conductive test)
CN102 PIN9 —CN2 PIN9 (conductive test)
CN102 PIN11 —CN2 PIN11 (conductive test)
CN102 PIN12 —CN2 PIN12 (conductive test)
CN102 PIN13 —CN2 PIN13 (conductive test)
CN102 PIN14 —CN2 PIN14 (conductive test)
CN102 PIN15 —CN2 PIN15 (conductive test)
CN102 PIN16 —CN2 PIN16 (conductive test)

- CN102 PIN17 —CN2 PIN17 (conductive test)

  5) Confirm that the POWER button is installed at correct position.
- 6) Connect the power source, and confirm the voltage of VPS, V∞ and VBC when pressing the POWER button (Power ON).

Check Point	Voltage (to GND)
CN2 4, 5 (VPS)	about 5 V
CN2 6, 7 (Vcc)	about 5 V
CN2 8 (VBC)	about 5 V

If above value is abnormal, measure the voltage of IC2 and peripherals, compare it with the voltage when power source is ON which is shown in circuit diagram to confirm the abnormal position, and replace the failure parts or Operation Board.

- 7) Confirm if the LCD inter connector is soiled with dust.
- 8) Confirm that IC1, R9, R10, R11 and R12 connect firmly.
- 9) Confirm that buzzer are connected with Main Board firmly.
- 10) Confirm if the lead line is soldered on the piezoelectric oscillation board of buzzer firmly.

#### **KX-G5500**

11) Confirm the voltage of VA1 and VA2 when the power source is ON.

 Check Point
 Voltage (to GND)

 IC203 PIN2
 4 V

 IC204 PIN2
 4 V

If above value is abnormal, measure the voltage of Q101, Q102 and peripherals, compare it with the voltage when power source is ON which is shown in circuit diagram to confirm the abnormal position, and replace the failure parts or Main Board.

If above value is normal, observe the wave form of F16CLK with oscilloscope.

Check Point	Wave form	
IC202 PIN13	(little dull wave form)	more than 2.0 V less than 0.8 V
	(intilo dali maro ioiii)	

If wave form is abnormal, confirm that IC202 and X201 are connected firmly. When it isn't abnormal, exchange the Main Board.

## STEP 2: DENSITY OF LCD DISPLAY IS ABNORMAL.

#### **Major Causes:**

- 1) The power source voltage is low.
- 2) The battery terminal (CN103) between battery pack and unit is defective contact.
- 3) The voltage for LCD control is failure.
- 4) The inter connector of LCD is defective connection.
- 5) Operation Board is failure.

#### **Check and Repairs:**

1) Connect the power source to the unit and confirm the voltage of VPS in a state of pressing the power button.

Check Point Voltage CN103 PIN1 (VPS)~PIN3 (GND) more than 4.4 V

2) Confirm that the electrode of CN103 comes in contact with the electrode of battery pack firmly.

3) Remove the optic conductive board (refer to exploded view), install it to Operation Board again after adjusting the location of interconnector, and confirm the driving.

4) Overlook to comfirm that R10, R11 and R12 are installed the correct position on Operation Board, further confirm following check point voltage.

 Check Point
 Voltage (to GND)

 IC1 PIN21
 5 V (VCC)

 IC1 PIN17
 3.3 V (2/3 VCC)

 IC1 PIN18
 1.7 V (1/3 VCC)

 IC1 PIN19
 0 V (GND)

If the installation of R10, R11 and R12 are abnormal, correct them. In case that the voltage of above check point is abnormal, replace IC1 or Operation Board.

# STEP 3: REDUCED VOLTAGE DISPLAY APPEARS.

#### **Major Causes:**

1) The power source voltage is low.

- 2) The battery terminal (CN103) between battery pack and unit is defective contact.
- 3) Main Board is failure.

#### **Checks and Repairs:**

1) Connect the power source to the unit and confirm the voltage of VPS in a state of pressing the power button.

Check PointVoltageCN103 PIN1 (VPS)—PIN3 (GND)more than 4.4 V

- 2) Confirm that the electrode of CN103 comes in contact with the electrode of battery pack firmly.
- 3) Overlook to comfirm that R107 and R108 are installed the correct position on Main Board, and if that are abnormal, correct them, further confirm the voltage of VDWN signal and IC110 PIN2.

Check Point

Voltage (to GND)

IC110 PIN3 (VDOWN)

about 0 V

IC110 PIN2

about 1.5 V

In case that the voltage of above check point is abnormal, replace IC110 or Main Board.

# STEP 4: LT/ST BUTTON IS NOT USEFUL/BACKLIGHT DOES NOT LIGHT.

#### **Major Causes:**

- 1) The harness and connector between Main Board and Operation Board are defective connection (CN102, CN2).
- 2) The harness of flex between Main Board and Operation Board is breaking of wire.
- 3) Installation of LT/ST button is failure.
- 4) Operation Board is failure.
- 5) Main Board is failure.

## Checks and Repairs:

1) 2) Use the tester to confirm that Main Board connects with Operation Board firmly.

#### **Check Point**

CN102 PIN19—CN2 PIN19 (conductive test)

CN102 PIN18—CN2 PIN18 (conductive test)

- 3) Confirm that LT/ST button is installed at correct position.
- 4) Connect the power source, and confirm the voltage of KEY6 signal, when pressing the POWER button (Power ON).

**Check Point** 

Voltage (to GND)

Condition

CN2 PIN19

about 5 V

LT/ST button OFF

CN2 PIN19

about 0 V

LT/ST button ON

If it is abnormal, it is judged that failure of LT/ST button or disconnection of pattern, repair the Operation Board. If it is normal, measure the voltage of Q8 and peripherals and compare it with the voltage when back light ON which is shown in circuit diagram to confirm the abnormal position, and replace the failure parts or Operation Board.

5) If there is no problem with the checks in 1), 2), 3) and 4) above, Main Board is failure and should be replaced.

# STEP 5: START BUTTON IS NOT USEFUL.

#### Major causes:

- 1) The harness and connector between Main Board and Operation Board are defective connection (CN102, CN2).
- 2) The harness of flex between Main Board and Operation Board is breaking of wire.
- 3) Installation of START button is failure.
- 4) Operation Board is failure.
- 5) Main Board is failure.

#### **Checks and Repairs:**

1) 2) Use the tester to confirm that Main Board connects with Operation Board firlmy.

# **Check Point**

CN102 PIN24—CN2 PIN24 (conductive test)

3) Confirm that the START button is installed at correct position.

4) Connect the power source, and confirm the voltage of KEY4 signal, when pressing the POWER button (Power ON).

Condition

Voltage (to GND) **Check Point** START button OFF about 5 V CN2 PIN24 about 0 V CN2 PIN24

START button ON If it is abnormal, it is judged that failure of START button or disconnection of pattern, and repair the Operation Board.

5) If there is no problem with the checks in 1), 2), 3) and 4) above, Main Board is failure and should be replaced.

# STEP 6: RECEIVING WITH SATELLITE IS IMPOSSIBLE.

#### Major causes:

- 1) No satellite/invisible.
- 2) Defective connection between Antenna and RF Board (CN301).
- 3) Defective connection between RF Board and Main Board (CN302, 303).
- 4) Failure of Main Board.
- 5) Failure of RF Board.

# Checks and Repairs:

- 1) Confirm the measuring place and hours that satellites can be seen.
- 2) Confirm that antenna connects with RF Board firmly.
- 3) Confirm that RF Board connects with Main Board firmly.
- 4) If the value of VA1 (IC205-2P) and VA2 (IC206-2P) aren't from 3.75 to 4.25 V, either IC is failure or the power source line is short circuit to ground.
  - •Use the spectrum analizer to measure the output of CN201, if the signal of 1557.006 MHz −3~0 dBm isn't output, the 1st Local signal generator is failure.
  - a) If the collector electric potential of Q202, Q203 and Q204 are 4 V, either transistor is failure or base doesn't get bias.
  - b) If the emitter voltage of Q201 is 0 V, Q201 or R201 is abnormal.
  - c) Use the synchroscope to confirm the wave form of IC201-9P, if short wave of 127.875 kHz isn't appear, either IC201 is failure or signal of IC201-6P is breaking of wire halfway.
  - If there is no application in a), b) and c) above, the signal line from IC201-1P to CN301 is breaking of wire.
  - •Use the synchroscope to confirm the wave form of IC203-3P, if signal of 16.368 MHz isn't appear, either IC202 is failure or signal line may be breaking of wire.
  - ●Input the signal of 18.414 MHz/about −60 dBm from signal generator to CN202, if short wave of 2.046 MHz/0~4 V doesn't appear at IC204-4P, 2nd IF circuit is failure.
  - e) Confirm the voltage of power source terminal of IC203 and IC204.
  - If the voltage of each terminal of IC203 is abnormal, either IC203 or peripheral circuit is destroyed.
  - Use the synchroscope to confirm the output of TP2A, if output of 0-4 V isn't gained, IC204 is failure.
  - h) If there is no application in e), d) and g) above, the signal line from CN201 to IC204 may be breaking of wire.
- 5) •Confirm the analog section of Main Board is normal. And then, when inputting the signal of 1575.42 MHz/about -100 dBm from signal generator to CN301 and confirming the wave from of TP2A by synchroscope, if the signal of 2.046 MHz isn't gained, RF Board is failure.
  - If the collector voltage of Q301, Q302, Q303 and Q305 is 0 V or 4 V, transistor is destroyed.
  - If the drain voltage of Q304 is 4 V, either FET is destroyed or source is floating.

K) If there is no application in i) and j) left, the signal line may be breaking of wire.

After Executing the checks left, replace destroyed parts or failure Board.

# STEP 7: MEASURING IS IMPOSSIBLE.

#### Major causes:

- 1) No satellites/invisible
- 2) Failure of Main Board

#### **Checks and Repairs:**

- 1) Confirm the measuring place and hours that more than 3 satellites can be seen.
- 2) Check following 4 points about Main Board and Analog Board.
  - A) If Output of IC204 is abnormal.
  - B) Aging of oscillating frequency
  - C) Look out of PLL circuit
  - D) Frequency distortion of 1st IF circuit
- A) In case observing the period wave form in output of TP2A by using synchroscope, confirm that IC204-7P is neither open nor grounded, and that capacitor terminal for decoupling (17P, 19P, 21P and 23P) isn't touched to other.
- B) At normal temparature, use the frequency counter to measure the frequency of IC202-6P correctly. If the distortion is more than 4ppm, re-adjust X201.
- C) Measure the frequency character of RF Board in method based on re-adjusting method 4–2. If the center frequency has distortion, re-adjust L303 and L304.
- D) At normal temparature, if the voltage of TP1A isn't 2 V, re-adjust the feedback boards because PLL circuit doesn't lock, therefore necessary 1st Local signal may be not gained when temparature is changed.

Execute re-adjusting above or replace boards.

# STEP 8: MODE BUTTON IS NOT USEFUL.

#### Major causes:

- 1) The harness and connector between Main Board and Operation Board are defective connection (CN102, CN2).
- 2) The harness of flex between Main Board and Operation Board is breaking of wire.
- 3) Installation of MODE button is failure.
- 4) Operation Board is failure.
- 5) Main Board is failure.

#### **Checks and Repairs:**

1) 2) Use the digital voltmeter to confirm that Main Board connects with Operation Board firmly.

#### Check Point

CN102 PIN23-CN2 PIN23 (conductive test)

- 3) Confirm that the MODE button is installed at correct position.
- 4) Connect the power source and confirm the voltage of KEY1 signal, when pressing the POWER button (Power ON).

Voltage (to GND)	Condition
about 5 V	MODE button OFF
about 0 V	MODE button ON
	about 5 V

If it is abnormal, it is judged that failure of MODE button or disconnecton of halfway pattern. Replace the Operation Board.

5) If there is no problem with the checks in 1), 2), 3) and 4) above, Main Board is failure and should be replaced.

# STEP 9: WP/PP BUTTON IS NOT USEFUL.

#### **Major Causes:**

- 1) The harness and connector between Main Board and Operation Board are defective connection (CN102, CN2).
- 2) The harness of flex between Main Board and Operation Board is breaking of wire.
- 3) Installation of WP/PP button is failure.
- 4) Operation Board is failure.
- 5) Main Board is failure.

#### **Checks and Repairs:**

1) 2) Use the digital voltmeter to confirm that Main Board connects with Operation Board firmly.

#### **Check Point**

CN102 PIN21-CN2 PIN21 (conductive test)

- 3) Confirm that the WP/PP button is installed at correct position.
- 4) Connect the power source, and confirm the voltage of KEY2 signal, when pressing the POWER botton (Power ON).

Check Point	Voltage (to GND)	Condition
CN2 PIN21	about 5 V	WP/PP button OFF
CN2 PIN21	about 0 V	WP/PP button ON

If it is abnormal, it is judged that failure of WP/PP button or disconnection of halfway pattern and replace the Operation Board.

5) If there is no problem with the checks in 1), 2), 3) and 4) above, Main Board is failure and should be replaced.

# STEP 10: DISP BUTTON IS NOT USEFUL.

#### Major causes:

- 1) The harness and connector between Main Board and Operation Board are defective connection (CN102, CN2).
- 2) The harness of flex between main Board and Operation Board is breaking of wire.
- 3) Installation of DISP button is failure.
- 4) Operation Board is failure.
- 5) Main Board is failure.

#### **Checks and Repairs:**

1) 2) Use the tester to confirm that Main Board connects with Operation Board firmly.

#### **Check Point**

CN102 PIN20-CN2 PIN20 (conductive test)

- 3) Confirm that the DISP button is installed at correct position.
- 4) Connect the power source and confirm the voltage of KEY3 signal, when pressing the POWER button (Power ON).

Check Point	Voltage (to GND)	Condition
CN2 PIN20	about 5 V	DISP button OFF
CN2 PIN20	about 0 V	DISP button ON

If it is abnormal, it is judged that failure of DISP button or disconnection of halfway pattern. Replace the Operation Board.

5) If there is no problem with the checks in 1), 2), 3) and 4) above, Main Board is failure and should be replaced.

# STEP 11: MEMO BUTTON IS NOT USEFUL.

#### Major causes:

- 1) The harness and connector between Main Board and Operation Board are defective connection (CN102, CN2).
- 2) The harness of flex between Main Board and Operation Board is breaking of wire.
- 3) Installation of MEMO button is failure.
- 4) Operation Board is failure.
- 5) Main Board is failure.

#### **Checks and Repairs:**

1) 2) Use the digital voltmeter to confirm that Main Board connects with Operation Board firmly.

#### **Check Point**

CN102 PIN22-CN2 PIN22 ("on" period test)

- 3) Confirm that the MEMO button is installed at correct position.
- 4) Connect the power source and confirm the voltage of KEY5 signal, when pressing the POWER button (Power ON).

Check Point	Voltage (to GND)	Condition
CN2 PIN22	about 5 V	MEMO buton OFF
CN2 PIN22	about 0 V	MEMO button ON

If it is abnormal, it is judged that failure of MEMO button or disconnection of halfway pattern. Replace the Operation Board.

5) If there is no problem with the checks in 1), 2), 3) and 4) above, Main Board is failure and should be replaced.

# STEP 12: POWER OFF IS IMPOSSIBLE.

#### Major causes:

- 1) The harness and connector between Main Board and Operation Board are defective connection (CN102, CN2).
- 2) The harness of flex between Main Board and Operation Board is breaking of wire.
- 3) Operation Board is failure.
- 4) Main Board is failure.

#### **Checks and Repairs:**

1) 2) Use the digital voltmeter to confirm that Main Board connects with Operation Board firmly.

#### **Check Point**

CN102 PIN10-CN2 PIN10 ("on" period test) CN102 PIN17-CN2 PIN17 ("on" period test)

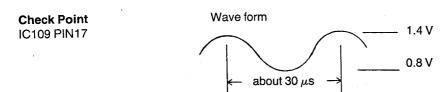
3) Connect the power source, and confirm the voltage of KEY0 signal, when pressing the POWER button (Power ON).

Check Point	Voltage (to GND)	Condition
CN2 PIN10	about 5 V	POWER button OFF
CN2 PIN10	about 0 V	POWER button ON

If it is abnormal, it is judged that failure of POWER button or disconnection of halfway pattern and replace the Operation Board. If it isn't abnormal, confirm that IC2 and Q1 are connected firmly.

4) If there is no problem with the checks in 1), 2) and 3) above, Main Board is failure and should be replaced.

#### KX-G5500



When the wave form above is not observed, confirm that IC109, X101, C110, C111 and R110 are connected firmly. If it is abnormal, correct it. After that, if normal operation in not obtained yet, replace main Board.

STEP 15: REDUCE VOLTAGE DISPLAY DOES NOT APPEAR.

#### Major causes:

- 1) The power source voltage is low.
- 2) The battery terminal between battery pack and unit is defective contact (CN103).
- 3) Main Board is failure.

# **Checks and Repairs:**

same as STEP 3

STEP 16: EXTERNAL INTERFACE DOES NOT OPERATE.

#### Major causes:

- 1) Measuring operation stops.
- 2) The battery terminal between battery pack and unit is defective contact (CN103).
- 3) Main Board is failure.
- 4) I/F board (option) is failure.

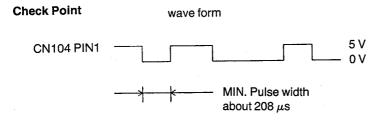
## **Checks and Repairs:**

- 1) Confirm the mesuring place and hours that more than 3 satellites can be seen.
- 2) Confirm that Main Board is connected with I/F board firmly.
- 3) Connect the power source and confirm the voltage of ADPT signal, when pressing the POWER button (Power ON).

Check Point Volta CN104 PIN3

Voltage (to GND) about 0 V

If the value of voltage is abnormal, 1) or 4) must be caused. If it is normal, use the oscilloscope to confirm the wave form of SO signal in a state of measuring.



After measuring, if the value of SO signal is still fixed 5 V and the wave form above is not observed, replace Main Board.

4) If there is no problem with the checks in 1), 2) and 3) above, I/F Board is failure and should be replaced.

# STEP 13: BACK UP OF MEASURING RESULT IS IMPOSSIBLE.

#### Major causes:

- 1) The harness and connector between Main Board and Operation Board are defective connection (CN102, CN2).
- 2) The harness of flex between Main Board and Operation Board is breaking of wire.
- 3) The lithium battery voltage becomes low.
- 4) Operation Board is failure.

#### **Checks and Repairs:**

1) 2) Use the digital voltmeter to confirm that Main Board connects with Operation Board firmly.

#### **Check Point**

CN102 PIN8-CN2 PIN8 ("on" period test)

3) Confirm that the lithium battery (BA1) is connected firmly and measure its voltage.

**Check Point** 

Voltage (to GND)

**BA1+** 

more than 2.5 V

If the value of voltage is lack, replace BA1.

4) Measure the voltage of backup power source (VBC) in a state of removing the power source.

**Check Point** 

Voltage (to GND)

CN2 PIN8

more than 2 V

If the value of voltage is lack, confirm that D1, R7 and J are connected firmly. If it's abnormal, correct it and confirm that VBC becames voltage value above.

# STEP 14: CLOCK OPERATION STOPS.

#### Major causes:

- 1) The harness and connector between Main Board and Operation Board are defective connection (CN102, CN2).
- 2) The harness of flex between Main Board and Operation Board is breaking of wire.
- 3) The lithium battery voltage becomes low.
- 4) Operation Board is failure.
- 5) Main Board is failure.

#### **Checks and Repairs:**

1) 2) Use the tester to confirm that Main Board connects with Operation Board firmly.

# **Check Point**

CN102 PIN8-CN2 PIN8 ("on" period test)

3) Confirm that the lithium battery (BA1) is connected firmly.

**Check Point** 

Voltage (to GND)

BA1+

more than 2.5 V

If the value of voltage is lack, replace BA1.

4) Measure the voltage of backup power source (VBC) in a state of removing.

**Check Point** 

Voltage (to GND)

CN2 PIN8

more than 2 V

If the value of voltage is lack, confirm that D1, R7 and Jumper J1 are connected firmly, if it is abnormal, correct it and confirm that VBC becomes voltage value above.

5) Use oscilloscope to confirm if the real time clock (IC109) continues oscillating in a state of removing the power source.

# CABINET, MECHANICAL AND ELECTRICAL PARTS LOCATION (KX-G5500)

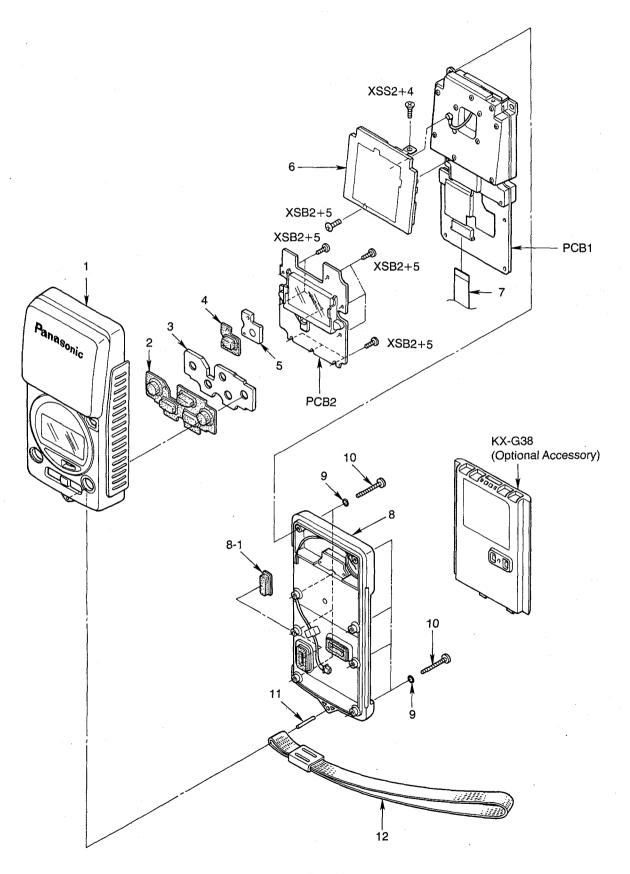


Fig. 43

# **CABINET AND ELECTRICAL PARTS LOCATION (KX-G36)**

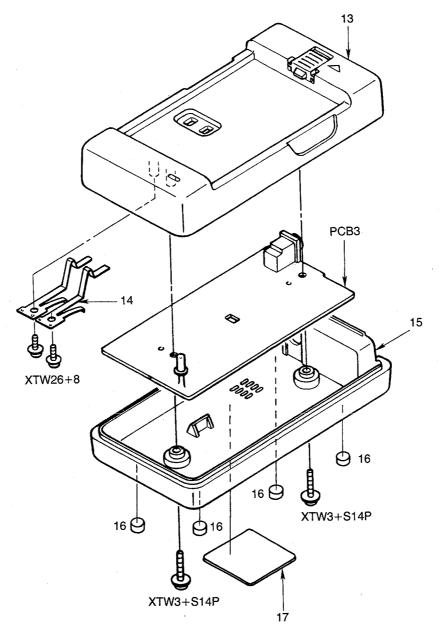
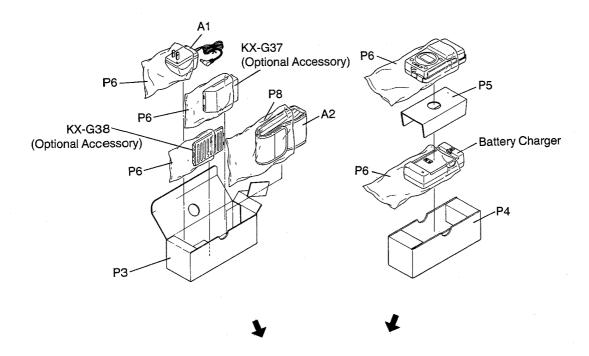


Fig. 44

# **ACCESSORIES AND PACKING MATERIALS**



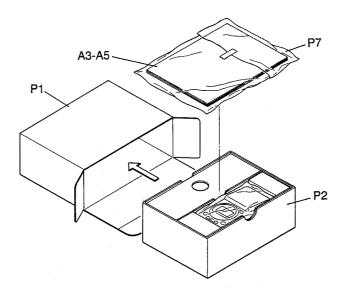


Fig. 45

Pcs

1

1

2

1

1

1

1

Part Name & Description

TRANSISTOR(SI) TRANSISTOR(SI)

TRANSISTOR(SI)

TRANSISTOR(SI)

TRANSISTOR(SI)

TRANSISTOR(SI)

TRANSISTOR(SI)

(DIODES) DIODE(SI)

DIODE(SI)

(COILS)

REPL	ACEMEN	I TI	PAF	RTS	LIST		
					Model	KX-G55	500
Notes:							
1. RTL (Retention Time	Limited)						
The marking (RTL) inc	dicates that the F	Retent	ion Tin	ne is limi	ted for this	item.	
After the discontinuati	on of this assem	bly in	produc	tion, the	item will o	continue	
	to be available for a specific period of time.						
The retention period of	of availability is d	epend	ant on	the type	of assem	bly, and in	1
	accordance with the laws governing part and product retention.						
After the end of this p	eriod, the assem	bly wi	il no lo	nger be	available.		
2. Important safety notice	ce.						
Components Identifie	d by the 🛆 mari	k spec	ial cha	racterist	ics import	ant for saf	ety.
When replacing any o	of these compone	ents, u	ise only	manuf	acture's sp	ecified pa	rts.
3. The S mark Indicates	s service standar	d part	s and r	nay diffe	er from pro	duction	
parts.							
4. RESISTORS & CAP	ACITORS						
Unless otherwise spe							
All resistors are in oh	ms( $\Omega$ ) k=l000 $\Omega$	,M=10	00kΩ				•
All capacitors are in N		(μF)	P=µµF				
*Type &Wattage of F	Resistor						
Туре							1
ERC:Solid	ERX:Metal F		1	4R:Carb			1
ERD:Carbon	ERG:Metal C				e Resistor		
PQRD:Carbon	ER0:Metal F	ıım	JEH	r:Ceme	nt Resisto		j
Wattage	14,25:1/4W		12:1/2\	A.I	1:1W	2:2W	3:3W
10,16:1/8W *Type & Voltage of C			12.1/21	<u> </u>	11.144	1 2.2 4 4	13.344
1 2	apacitor						
Type ECFD:Semi-Conduct		ECC	D ECK	D ECRT	,PQCBC :	Ceramic	
ECQS:Styrol	Oi.				; CODO :		l
PQCUV:Chip		1		Z : Elect	-		
ECQMS:Mica		1	•	ypropyle	•		
Voltage		1		77.5.7.			
ECQ Type	ECQG	ECS.	Z Type	T	01	hers	
	ECQV Type		,,-	1			
1H: 50V	05: 50V	0F:3	.15V	OJ :	6.3V	1V :3!	5V
2A:100V	1:100V	1A:1	OV	1A :	:10V	50,1H:50	οV
2E:250V	2:200V	17:3	35V	1C	:16V	1J :63	v
2H:500V		0J:6	.3V	1E,25	25V	2A :10	٥٧

	1		(coirs)		ĺ
	L201	PQLQR1F27NJ	COIL	1	
	L202	PQLQR1I68NG	COIL	1	
	L203	PQLQR1B039MT	COIL	1	ĺ
	L204	PQLQR1B033MT	COIL	1	ĺ
	L205	PQLQR1B039MT	COIL	1	ĺ
	L206	PQLQR1B056MT	COIL	1	ĺ
	L207	PQLQR1115NG	COIL	1	ĺ
	L207	PQLQR1C101KT	COIL	1	ĺ
1		i	1	1	ĺ
J	L209	PQLQR1C101KT	COIL		ĺ
	L210	PQLQR1C101KT	COIL	1	ĺ
	L211, 212	PQLQR1C470JT	COIL	2	ĺ
	L213	PQLQR1C101KT	COIL	. 1	ĺ
					ĺ
	L301, 302	PQLQR1I4N7G	COIL	2	ĺ
	L303	PQLRE001	COIL	1.	ĺ
-	L304	PQLRE002	COIL	1	ĺ
1	L305	PQLQR1I4N7G	COIL	1	ĺ
۱					ĺ
		[	(FILTERS)		į
١	F004	E7ED45E7 \$3404	1'		ĺ
	F201	EZFB1557AM01	BAND PASS FILTER	1	
į	F202	EF0H387MVP1	SAW FILTER	1	
	F301	EZFB1575AM01	BAND PASS FILTER	1	
	.	1	·		
s					
			(CRYSTAL OSCILLATORS)		ĺ
	X101	PQVCG3276N9Z	CRYSTAL OSCILLATOR	1	ĺ
	X201	PQVCA303B163	CRYSTAL OSCILLATOR S	1	
		}			ĺ
	ŀ				
			(RESISTORS)		
	R101	ERJ3GEYJ103	10K	1	
	R102	ERJ3GEYJ473	47K	1	
	1 1	i i	1	2	
	R103, 104	ERJ3GEYJ102	1K		
	R105	ERJ6ENF7501	7.5K	1	
	R106	ERJ6ENF3301	3.3K	1	į
	R107	ERJ6ENF2702	27K	1	
	R108	PQ4R10XF1002	10K	1	
	R109	ERJ3GEYJ103	10K	1	
	R110	ERJ3GEYJ105	1M	1	
	R111	ERJ3GEYJ103	10K	1	
ı	R201	ERJ3GEYJ102	1K	1	
	R202	ERJ3GEYJ225	2.2M	1	
	l i	1			
-	R203	ERJ3GEYJ392	3.9K	. 1	
1	R204	ERJ3GEYJ222	2.2K	1	
	R205	ERJ3GEYJ682	6.8K	1	
١	R206	ERJ3GEYJ102	1K	1	
١	R207	ERJ3GEYJ152	1.5K	1	
- ]	R208	ERJ3GEYJ683	68K	1	
١	R209	ERJ3GEYJ101	100	1	
J					
- 1	R210	ERJ3GEYJ473	47K	1	
_				[2.2]	
				44	

Ref. No.	Part No.	Part Name & Description	Pcs					
						(CRYSTAL OSCILLATORS)	1	
		MAIN BOARD PARTS		X101	PQVCG3276N9Z	CRYSTAL OSCILLATOR		1
				X201	PQVCA303B163	CRYSTAL OSCILLATOR	S	1
PCB1	PQWP1G5500M	MAIN BOARD ASS'Y (RTL)	1					
		(ICs)		,		(RESISTORS)	1	
IC101	PQVI400BFKX	ic	1	R101	ERJ3GEYJ103	10K		1
IC102	PQVI1039F0F	IC	1	R102	ERJ3GEYJ473	47K		1
IC103	PQWIG5500M	lic	1	R103, 104	ERJ3GEYJ102	1K	1	2
IC104	PQVICX5825YF	IC	1	R105	ERJ6ENF7501	7.5K		1
IC105, 106	PQVICX5825TF	IC	2	R106	ERJ6ENF3301	3.3K		1
IC107	PQVICX5825YF	IC	1	R107	ERJ6ENF2702	27K		1
IC108	PQVITC7S04FR	ic	1	R108	PQ4R10XF1002	10K		1
IC109	PQVIRIF5C62	IC	1	R109	ERJ3GEYJ103	10K		1
IC110	PQVIMB3771F	IC	1 1			·		
				R110	ERJ3GEYJ105	1M	1	1
IC201	AN8547S	IC	1	R111	ERJ3GEYJ103	10K		1
IC202	PQVITC7H04AF	IC	1				1	
IC203	PQVICXA1293M	IC .	1	R201	ERJ3GEYJ102	1K		1
IC204	PQVITC7S04FR	IC	1	R202	ERJ3GEYJ225	2.2M		. 1
IC205, 206	PQVILA5004ME	lic	2	R203	ERJ3GEYJ392	3.9K	1	1
	'			R204	ERJ3GEYJ222	2.2K		1
				R205	ERJ3GEYJ682	6.8K	1	1
		(TRANSISTORS)		R206	ERJ3GEYJ102	1K	1	1
Q101	2SB956R	TRANSISTOR(SI)	1	R207	ERJ3GEYJ152	1.5K	1	1
Q102	UN5213	TRANSISTOR(SI)	S 1	R208	ERJ3GEYJ683	68K		1
Q103	PQVTDTC114Y	TRANSISTOR(SI)	1 1	R209	ERJ3GEYJ101	100		1
Q201	2SD2216R	TRANSISTOR(SI)	1	R210	ERJ3GEYJ473	47K		1

Ref. No.

Q202

Q203

Q204

Q301

Q304

Q305

D101

D201

Q302, 303

Part No.

2SC4808 2SC4515

2SC4228R

2SC4784

2SC4228R

2SC2619C

MA8056H

MA321

3SK228

Ref. No.	Part No.	Value	Pcs	Ref. No.	Part No.	Part Name & Description	Pcs
R211	ERJ3GEYJ101	100	1	C222	ECUV1H101JCV	100P	1
R212	ERJ3GEYJ823	82K	1	C223	ECSTAJ1AB106	10	1
R213	ERJ3GEYJ101	100	1 1	C224	ECUV1H102KBV	0.001	1
R214	ERJ3GEYJ101	100	1	C225	ECSTAJ1AB106	10	1
R215	ERJ3GEYJ103	10K	1	C226	ECUV1H102KBV	0.001	1
	ERJ3GEYJ392	3.9K	1	C227	ECSTAJ1AB106	10	1 1
R216	1	1M	1	C228	ECUV1H103KBV	0.01	1
R217	ERJ3GEYJ105	100	1	C229	ECUV1H103KBV	0.01	1
R218	ERJ3GEYJ101	1	1 1	0223	Coorminasia	0.0,	1
R219	ERJ3GEYJ101	100	1 '	C230	ECUV1H103KBV	0.01	1
		1	1.	f 1		i	;
R220	ERJ3GEYJ101	100	1 !	C231	ECUV1H103KBV	0.01	1
R221	ERJ3GEYJ105	1M	1	C232	ECUV1H103KBV	0.01	1 1
R222	ERJ3GEYJ102	1K	1	C233	ECUV1H103KBV	0.01	1 1
<u> </u>		<b>\</b>	1 .	C234	ECUV1H103KBV	0.01	1 1
R301	ERJ3GEYJ823	82K	1	C235	ECUV1H104ZFV	0.1	
R302	ERJ3GEYJ101	100	1	1 1	ECUV1H180JCV	18P	2
R303	ERJ3GEYJ104	100K	1	C238	ECUV1H104ZFV	0.1	
R304	ERJ3GEYJ101	100	1	C239, 240	ECUV1H180JCV	18P	2
R305	ERJ3GEYJ104	100K	1				1
R306	ERJ3GEYJ101	100	1	C241	ECUV1H104ZFV	0.1	1
R308	ERJ3GEYJ471	470	1	C242	ECSTAJ1AB106	10	1
R309	ERJ3GEYJ101	100	1	C243	ECUV1H030CCV	ЗР	1
เมองอ	L. 1000L 10101	1	1	C244	PQCVTZC100	TRIMER CAPACITOR	1
10010	ERJ3GEYJ223	22K	1 1	C245	ECUV1H104ZFV	0.1	1
R310	1	39K	1 1	C246	ECUV1H102KBV	0.001	1
R311	ERJ3GEYJ393	•	1 ;		Looring	J	
R312	ERJ3GEYJ101	100	1 ;	C250	ECSTAJ1AB106	10	1
R313	ERJ3GEYJ221	220		}	E .	10	1 ;
R314	ERJ3GEYJ221	220	1	C251	ECSTAJ1AB106	1	1
R315	ERJ3GEYJ271	270	1	C252	ECUM1H0R5CCV	0.5P	1
P316	ERJ3GEYJ180	18	1	C253	ECUM1H101JCV	100P	1
R317	ERJ3GEYJ271	270	1 1	C254	ECUV1H040CCV	4P	1
<b>\</b>	1		1	1 1			1
1.			1	C301	ECUV1H060DCV	6P	1
<b>\</b>	1	(CAPACITORS)		C302	ECUV1H103KBV	0.01	1
C101	ECUV1H104ZFV	1.	S 1	C303	ECUV1H102KBV	0.001	1
C102	ECST1CY105		S 1	C304	ECUV1H120JCV	12P	1 1
C102-107	1		S 5	C305	ECUV1H040CCV	4P	1
1	ECSTAJ1AC226	22	1	C306	ECUV1H1R5CCV	1.5P	1 1
C108	1		s 1	C307	ECUV1H120JCV	12P	1
C109	ECUV1H104ZFV	0.1	~  ·	C308	ECUV1H101JCV	100P	1 1
		450	١.	C309	ECUV1H220JCV	22P	1
C110	ECUV1H150JCV	15P	1 1	C309	ECOV INZZOJOV	227	} '
C111	ECUV1H150JCV	15P	1	0010	E011/41/400 (0)/	400	1 .
C112	ECUV1H104ZFV		S 1	C310	ECUV1H120JCV	12P	1
C113	ECSTAJ1AC226	22	1	C311	ECUV1H1R5CCV	1.5P	1 1
C114	ECST1CY225	2.2	1	C312	ECUV1H120JCV	12P	1
C115	ECUV1H104ZFV		S 1	C313	ECUV1H101JCV	100P	1
C116	ECUV1H104ZFV	0.1	S 1	C314	ECUV1H150JCV	15P	1
C117	ECUM1H680JCV	68P	1	C315	ECUV1H101JCV	100P	1
C118	ECUV1H104ZFV	0.1	S 1	C316, 317	ECUV1H270JCV	27P	2
C119	ECUV1H333KDV		S 1	C318-323	ECUV1H104ZFV	0.1	6
155		1			I		1
C201 20	2 ECUV1H104ZFV	0.1	s 2	C324	ECUV1H101JCV	100P	1
	ECSTAJ1AB106	10	1	C325	ECSTAJ1AB106	10	1
C203	1	1	s 1	C326	ECUV1H820JCV	82P	1
C204	ECST1CY105	1	1	1 1	ECUV1H120JCV	12P	1 ;
C205	ECST1CY225	I <sup></sup>	1	C327		i e	1
C206	ECUV1H103KBV	0.01	1 1	C328	ECUV1H470JCV	47P	!
C207	ECUV1H040CCV	4P	1	C329	ECUV1H180JCV	18P	] 1
C208	ECUV1H101JCV	100P	1		1	1	į
C209, 210	ECUV1H150JCV	15P	2	1 1	]		
	1		1		1	(CONNECTORS)	1
C211	ECUV1H050CCV	5P	1	CN101	PQJS02A11Z	CONNECTOR, 2P	] 1
C212	ECUV1H101JCV	100P	1	CN102	POJS24A12Z	CONNECTOR, 24P	1
	ECUV1H070DCV	7P	2	CN103	PQJT10009Z	CHARGE TERMINAL	1
C214, 21	ECUV1H030CCV	3P	1	CN104	PQJT10010Z	INTERFACE TERMINAL	1
		100P	1	CN201	PQJS01A08Z	CONNECTOR, 1P	1
C217	ECUV1H101JCV	1.5P		CN202	PQJS01A08Z	CONNECTOR, 1P	1
C218	ECUV1H1R5CCV	ł .		CN202	PQJS01A00Z PQJS02A11Z	CONNECTOR, 2P	
C219	ECUV1H150JCV	15P	'	1	1	1	
		1		CN301	PQJS01A08Z	CONNECTOR, 1P	1
C220	ECUV1H120JCV	12P	] 1	CN302	PQJS01A08Z	CONNECTOR, 1P	
C221	ECUV1H104ZFV	0.1	S 1	CN303	PQJS01A08Z	CONNECTOR,1P	1 1

Ref. No.	Part No.	Part Name & Description	Pcs
CN304	PQJS02A11Z	CONNECTOR, 2P	1
C14304		ATION BOARD PARTS	
PCB2	PQWP2G5500N	OPERATION BOARD ASS'Y (RTL)	1
	·		
		(ICs)	
IC1	PQVIPD7225GB	IC	1
IC2	PQVISN7H00D	IC .	1
		(TRANSISTORS)	
Q1	UN5213	TRANSISTOR(SI)	1
Q3	2SB956R	TRANSISTOR(SI)	1
Q4	2SB956R	TRANSISTOR(SI)	1 1
Q5, 6	UN5213	TRANSISTOR(SI) S	2
Q8	PQVTDTC123E	TRANSISTOR(SI)	1 1
		]	
		1	
		(DIODES)	
D1	MA718	DIODE(SI)	1 1
D2-5	POVDCL170YGC	LED	4
D6	MA110	DIODE(SI)	1
		(BATTERY)	
BA1	PQPCR2025T09	LITHIUM BATTERY	1
		(SWITCHS)	
S1	EVQQEJ04K	switch	1
S2-7	EVQQFV02K	SWITCH	6
		•	
1		W 003	
	20 A D D L 000 F 7	(LCD)	1
LCD	PQADDLC2957	LIQUID CRYSTAL DISPLAY	1 '
	1		
		(RESISTORS)	1
J1	ERJ3GEYJ0R00	o	1
R1	ERJ3GEYJ472	4.7K	1
R2	ERJ3GEYJ103	10K	1
R3	ERJ3GEYJ473	47K	1
R4	ERJ3GEYJ102	1K	1
R5	ERJ3GEYJ102	1K	1
R6	ERJ3GEYJ102	1K	1
R7	ERJ3GEYJ222	2.2K 10K	
R8 R9	ERJ3GEYJ103 ERJ3GEYJ154	150K	
he	ENJ3GE 10154	1301	i '
R10	ERJ3GEYJ222	2.2K	1
R11	ERJ3GEYJ222	2.2K	1
R12	ERJ3GEYJ222	2.2K	1
R20	ERJ6GEYJ750	75	1
R21	ERJ3GEYJ183	18K	1
	1	(CAPACITORS)	
C1	ECUV1H104ZFV	0.1	1
C2	ECUV1H104ZFV	0.1	:
C3	ECUV1H104ZFV	0.1	
C3	ECUV1H104ZFV	0.1	
C5	ECUV1H104ZFV	0.1	
C6	ECUV1H104ZFV	0.1	
C7	ECUV1H104ZFV	0.1	1
C8	ECUV1H104ZFV	0.1	1 1
C9	ECUV1H104ZFV	0.1 S	1
Ī		}	
C10	ECUV1H104ZFV	0.1 S	1

		KX-	G550
Ref. No.	Part No.	Part Name & Description	Pcs
	F0. 944140 47514		1
C11 C15	ECUV1H104ZFV ECUV1H104ZFV	0.1 S	1
C16	ECUV1H104ZFV	0.1	1
C17	ECUV1H104ZFV	0.1	1
C18	ECUV1H104ZFV	0.1	1
• • •			
		(CONNECTOR)	
CN2	PQJS24A13Z	CONNECTOR, 24P	1
	<u> 1</u>	BATTERY CHARGER BOARD PARTS	
PCB3	PQWPG36M	BATTERY CHARGER BOARD ASS'Y (RTL)	1
		(IC)	
IC401	AN6780	IC	1
		(TRANSISTORS)	
Q401	2SD1991A	TRANSISTOR(SI)	1
Q402	2SD1266	TRANSISTOR(SI)	1
Q403	2SD1991A	TRANSISTOR(SI)	1
Q404	2SD1991A	TRANSISTOR(SI)	1
Q405	PQVTDTC144ES	TRANSISTOR(SI)	1
Q406	PQVTDTC144ES	TRANSISTOR(SI)	1
Q407	PQVTDTC144ES	TRANSISTOR(SI)	1
		(DIODES)	
D 404	100101		4
D401	1SS131	DIODE(SI)	1
D402	1SS131	DIODE(SI)	1
D403	PQVDS5688G	DIODE(SI)	1
D404	MA4062	DIODE(SI)	1
D405	LN21RCPHV	LED S	1
D406	PQVDS5688G	DIODE(SI)	1
D407	PQVDS5688G	DIODE(SI)	1
D408	PQVDS5688G	DIODE(SI)	
		(JACK)	
J	PQJJ1B6Z	DC JACK	1
		(RESISTORS)	
R401	ERDS2TJ561	560	1
R402	ERDS2TJ561	560	1
R403	ERDS2TJ561	560	1
R404	ERDS2TJ561	560	1
R405	ERDS2TJ150	15	1
R406	ERDS2TJ103	10K	1
R407	ERDS2TJ473	47K	1
R408	ERDS2TJ473	47K	1
R409	ERDS2TJ103	10K	1
R410	ERDS2TJ561	560	1
R411	ERDS2TJ332	3.3K	1
R412	ERDS2TJ564	560K	1
R413	ERDS2TJ101	100	1
R414	ERDS2TJ473	47K	1
		(CAPACITORS)	_
C401	ECEA1EU331	330	1
C402	ECEA1AKS101	100	1
C403	ECEA1EU470	47 S	1
C404	ECEA1CKS100	10	1
C405	ECEA1CM100	10	1
C406	ECQV1H333JZ	0.033	1
C407	ECQV1H333JZ	0.033	1
	:1	1	

# KX-G5500

PQYMG5500N	Ref. No.	Part No.	Part Name & Description	Pcs
PQYMG5500N			r ·	
PQYMG5500N	400	PQJT3134Z	TERMINAL	2
POBX10027Z1   BUTTON, FUNCTION   1		CAB	INET AND ELECTRICAL PARTS	
PQBX10027Z1   BUTTON, FUNCTION   1     PQHR10034Z   HOLDER, FUNCTION BUTTON   1     PQBC10030Z1   BUTTON, MODE   1     PQHR10033Z   HOLDER, MODE BUTTON   1     PQSA10002Z   ANTENNA   1     PQJE10013Z   FLAT CABLE   1     PQYFG5500M   REAR CABINET ASSY   1     PQHG10028Z   RUBBER PARTS, PACKING   1     PQHG10032Z   RING   8     PQHE10010Z   SCREW   8     PQHE10010Z   SCREW   8     PQHK10001Z   HAND STRAP   1     PQXT100013Z   TERMINAL   2     PQXMG36M   UPPER CABINET   1     PQXT10013Z   TERMINAL   2     PQKF10023Y1   LOWER CABINET   1     PQGT10374Y   NAME PLATE   1     PQGT10374Y   NAME PLATE   1     PQQT10292Z   LABEL, ADAPTOR   1     ACCESSORIES AND PACKING MATERIALS   1     AQ PQQW10281Z   INSTRUCTION BOOK (ENGLISH)   1     (QUICK REFERENCE)   1     AA PQQW10241Z   INSTRUCTION BOOK (SPANISH)   1     (QUICK REFERENCE)   1     PQPK10264Z   GIFT BOX   1     PQPK10264Z   GIFT BOX   1     PQPN10155Z   CUSHION-A   1     PQPP10155Z   CUSHION-B   1     PQPP10155Z   CUSHION-C   1     PQPP94Y   PROTECTION COVER   5     PQPP94Y   PROTECTION COVER   5     PQPP94Y   PROTECTION COVER   5     PQPP   XZB15X25A04   PROTECTION COVER   5     PC   PQPP94Y   PRO		POYMG5500N	FRONT CABINETCABINET ASS'Y	1
PQHR10034Z	!	1	1	1
PQBC10030Z1 BUTTON, MODE 1 PQHR10033Z HOLDER, MODE BUTTON 1 PQSA10002Z ANTENNA 1 PQSA10002Z ANTENNA 1 PQUE10013Z FLAT CABLE 1 PQHFG5500M REAR CABINET ASS'Y 1 PQHG10028Z RUBBER PARTS, PACKING 1 PQHG10032Z RING 8 PQHE10010Z SCREW 8 PQKT10001Z PIN 1 PQKT10001Z PIN 1 PQKT10001Z HAND STRAP 1 PQYMG36M UPPER CABINET 1 PQYMG36M UPPER CABINET 1 PQHG10032Y1 LOWER CABINET 1 PQHG316Z RUBBER PARTS, FOOT 4 PQGT10374Y NAME PLATE 1 PQGT10374Y NAME PLATE 1 PQQT10292Z LABEL, ADAPTOR 1 ACCESSORIES AND PACKING MATERIALS  AT KX-A10 AC ADAPTOR 1 AC PQGW10281Z INSTRUCTION BOOK (ENGLISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK 1 PQP PQPN10080Z CUSHION-A 1 PQPN10154Z ACCESSORY BOX 1 PQPN10155Z CUSHION-B 1 PQPP994Y PROTECTION COVER (SOFT CASE) 1			HOLDER, FUNCTION BUTTON	1
PQHR10033Z		i	BUTTON, MODE	1
PQSA10002Z   ANTENNA   1   PQJE10013Z   FLAT CABLE   1   PQYFG5500M   REAR CABINET ASS'Y   1   REAR CABINET ASS'Y   1   PQHG10028Z   RINBER PARTS, PACKING   1   PQHG10032Z   RING   8   PQHE10010Z   SCREW   8   REAR CABINET ASS'Y   1   PQKT10001Z   PIN   1   PQKT10001Z   PIN   1   PQKT10001Z   PQKH10001Z   PAND STRAP   1   PQYMG36M   UPPER CABINET   1   PQYMG36M   UPPER CABINET   1   PQHG316Z   PQKF10023Y1   LOWER CABINET   1   PQHG316Z   RUBBER PARTS, FOOT   4   PQGT10374Y   NAME PLATE   1   PQGT10374Y   NAME PLATE   1   PQGT10292Z   LABEL, ADAPTOR   1   PQCK10001Z   SOFT CASE   1   NSTRUCTION BOOK (ENGLISH)   1   (QUICK REFERENCE)   INSTRUCTION BOOK (SPANISH)   1   (QUICK REFERENCE)   INSTRUCTION BOOK (SPANISH)   1   (QUICK REFERENCE)   INSTRUCTION BOOK (SPANISH)   1   (QUICK REFERENCE)   INSTRUCTION BOOK   1   PQPN10154Z   ACCESSORY BOX   1   PQPN10154Z   ACCESSORY BOX   1   PQPN10155Z   CUSHION-A   1   PQPN10155Z   CUSHION-C   1   PQPP94Y   PROTECTION COVER   5   PQPP10155Z   CUSHION-C   1   P		PQHR10033Z	HOLDER, MODE BUTTON	1
PQJE10013Z FLAT CABLE  PQYFG5500M REAR CABINET ASS'Y  PQHG10028Z RUBBER PARTS, PACKING  PQHG10032Z RING  PQHE10010Z SCREW  PQKT10001Z PIN  PQKT10001Z HAND STRAP  PQJT10013Z TERMINAL  PQKF10023Y1 LOWER CABINET  PQHG316Z RUBBER PARTS, FOOT  PQGT10374Y NAME PLATE  PQGT10374Y NAME PLATE  PQGT10292Z LABEL, ADAPTOR  ACCESSORIES AND PACKING MATERIALS  AS PQQW10281Z INSTRUCTION BOOK (ENGLISH)  (QUICK REFERENCE)  PQQX10283Z INSTRUCTION BOOK (SPANISH)  PQPC10283Z INSTRUCTION BOOK  PQPN10156Z GUSHION-A  PQPN10156Z CUSHION-B  PQPN10156Z CUSHION-C  PQPP10156Z CUSHION-C  PQPP10156Z CUSHION-C  PGP PQPP94Y PROTECTION COVER  PROTECTION COVER (SOFT CASE)  1	;	PQSA10002Z	ANTENNA	1
PQHG10028Z   RUBBER PARTS, PACKING   1		PQJE10013Z	FLAT CABLE	1
PQHG10032Z   RING   R	3	PQYFG5500M	REAR CABINET ASS'Y	1
00 PQHE10010Z SCREW 8 1 PQKT10001Z PIN 1 2 PQKH10001Z HAND STRAP 1 3 PQYMG36M UPPER CABINET 1 4 PQJT10013Z TERMINAL 2 5 PQKF10023Y1 LOWER CABINET 1 6 PQHG316Z RUBBER PARTS, FOOT 4 7 PQGT10374Y NAME PLATE 1 8 PQQT10292Z LABEL, ADAPTOR 1  ACCESSORIES AND PACKING MATERIALS  A1 KX-A10 AC ADAPTOR	B-1	PQHG10028Z	RUBBER PARTS, PACKING	
PQKT10001Z	)	PQHG10032Z	RING	1
PQKH10001Z HAND STRAP 1 PQYMG36M UPPER CABINET 1 PQJT10013Z TERMINAL 2 PQKF10023Y1 LOWER CABINET 1 PQHG316Z RUBBER PARTS, FOOT 4 PQGT10374Y NAME PLATE 1 RB PQQT10292Z LABEL, ADAPTOR 1  ACCESSORIES AND PACKING MATERIALS  A1 KX-A10 AC ADAPTOR Δ S 1 A2 PQQK10001Z SOFT CASE 1 A3 PQQW10281Z INSTRUCTION BOOK (ENGLISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK 1 PQPK10264Z GIFT BOX 1 PQPK10264Z GIFT BOX 1 PQPPN10080Z CUSHION-A 1 PQPPN10155Z CUSHION-B 1 PQPPN10155Z CUSHION-B 1 PQPPP94Y PROTECTION COVER 5 PQPPP94Y PROTECTION COVER 5 PROTECTION COVER (SOFT CASE) 1	0	PQHE10010Z	SCREW	i .
PQYMG36M UPPER CABINET 1 PQJT10013Z TERMINAL 2 PQKF10023Y1 LOWER CABINET 1 PQHG316Z RUBBER PARTS, FOOT 4 PQGT10374Y NAME PLATE 1 RACESSORIES AND PACKING MATERIALS  ALL KX-A10 AC ADAPTOR	11	PQKT10001Z	PIN	1
44 PQJT10013Z TERMINAL 2 5 PQKF10023Y1 LOWER CABINET 1 66 PQHG316Z RUBBER PARTS, FOOT 4 77 PQGT10374Y NAME PLATE 1 88 PQQT10292Z LABEL, ADAPTOR 1  ACCESSORIES AND PACKING MATERIALS  A1 KX-A10 AC ADAPTOR	2	PQKH10001Z	HAND STRAP	1
PQKF10023Y1 LOWER CABINET 1 166 PQHG316Z RUBBER PARTS, FOOT 4 177 PQGT10374Y NAME PLATE 1 188 PQQT10292Z LABEL, ADAPTOR 1  ACCESSORIES AND PACKING MATERIALS  A1 KX-A10 AC ADAPTOR ⚠ S 1 A2 PQQK10001Z SOFT CASE 1 A3 PQQW10281Z INSTRUCTION BOOK (ENGLISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK 1 PQPK10264Z GIFT BOX 1 PQPPN10080Z CUSHION-A 1 PQPPN10154Z ACCESSORY BOX 1 PQPPN10155Z CUSHION-B 1 PQPPN10156Z CUSHION-C 1 PGP PQPP94Y PROTECTION COVER 5 POPN10156Z CUSHION-C 5 PGP YXZB15X25A04 PROTECTION COVER (SOFT CASE) 1	3	PQYMG36M	UPPER CABINET	1
PQHG316Z RUBBER PARTS, FOOT 4 PQGT10374Y NAME PLATE 1 RB PQQT10292Z LABEL, ADAPTOR 1  ACCESSORIES AND PACKING MATERIALS  A1 KX-A10 AC ADAPTOR ⚠ S 1 A2 PQQK10001Z SOFT CASE 1 A3 PQQW10281Z INSTRUCTION BOOK (ENGLISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK 1 PQQX10283Z INSTRUCTION BOOK 1 P1 PQPK10264Z GIFT BOX 1 P2 PQPN10080Z CUSHION-A 1 P3 PQPN10154Z ACCESSORY BOX 1 P4 PQPN10155Z CUSHION-B 1 P5 PQPN10156Z CUSHION-C 1 P6 PQPP94Y PROTECTION COVER 5 P7 XZB15X25A04 PROTECTION COVER (SOFT CASE) 1	14	PQJT10013Z		1
PQGT10374Y   NAME PLATE   1	15	PQKF10023Y1	į	
ACCESSORIES AND PACKING MATERIALS  ACCESSORIES AND	16	PQHG316Z		i .
ACCESSORIES AND PACKING MATERIALS  A1 KX-A10 AC ADAPTOR A S 1 A2 PQQK10001Z SOFT CASE 1 A3 PQQW10281Z INSTRUCTION BOOK (ENGLISH) 1 (QUICK REFERENCE) A4 PQQW10241Z INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) A5 PQQX10283Z INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) A6 PQQX10283Z INSTRUCTION BOOK 1  P1 PQPK10264Z GIFT BOX 1 P2 PQPN10080Z CUSHION-A 1 P3 PQPN10154Z ACCESSORY BOX 1 P4 PQPN10155Z CUSHION-B 1 P5 PQPN10156Z CUSHION-C 1 P6 PQPP94Y PROTECTION COVER 5 P7 XZB15X25A04 PROTECTION COVER (SOFT CASE) 1	17	II.	1	ı
A1 KX-A10 AC ADAPTOR	8	PQQT10292Z	LABEL, ADAPTOR	1
PQQK10001Z SOFT CASE 1 PQQW10281Z INSTRUCTION BOOK (ENGLISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK 1 PQPK10264Z GIFT BOX 1 PQPN10080Z CUSHION-A 1 PQPN10154Z ACCESSORY BOX 1 PQPN10155Z CUSHION-B 1 PQPN10156Z CUSHION-C 1 PQPP94Y PROTECTION COVER 5 PXZB15X25A04 PROTECTION COVER (SOFT CASE) 1		ACCESSO	DRIES AND PACKING MATERIALS	1
PQCK10001Z   SOFT CASE   1	A1	IKX-A10	AC ADAPTOR A S	- 1
PQQW10281Z INSTRUCTION BOOK (ENGLISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK 1  P1 PQPK10264Z GIFT BOX 1 P2 PQPN10080Z CUSHION-A 1 P3 PQPN10154Z ACCESSORY BOX 1 P4 PQPN10155Z CUSHION-B 1 P5 PQPN10156Z CUSHION-C 1 P6 PQPP94Y PROTECTION COVER 5 P7 XZB15X25A04 PROTECTION COVER (SOFT CASE) 1	A2	1		1
QUICK REFERENCE		1	l .	1
PQQW10241Z INSTRUCTION BOOK (SPANISH) 1 (QUICK REFERENCE) INSTRUCTION BOOK 1  PQQX10283Z INSTRUCTION BOOK SPANISH) 1  PQQX10283Z INSTRUCTION BOOK 1  PQQX10283Z INSTRUCTION BOOK SPANISH) 1  PQQX10283Z INSTRUCTION BOOK 1  PQQX10284Z INSTRUC	. <del>-</del> ,			
QUICK REFERENCE	۹4	PQQW10241Z	P. Comments of the comment of the co	1
P1 POPK10264Z GIFT BOX 1 P2 POPN10080Z CUSHION-A 1 P3 POPN10154Z ACCESSORY BOX 1 P4 POPN10155Z CUSHION-B 1 P5 POPN10156Z CUSHION-C 1 P6 POPP94Y PROTECTION COVER 5 P7 XZB15X25A04 PROTECTION COVER (SOFT CASE) 1		1	(QUICK REFERENCE)	
P2         PQPN10080Z         CUSHION-A         1           P3         PQPN10154Z         ACCESSORY BOX         1           P4         PQPN10155Z         CUSHION-B         1           P5         PQPN10156Z         CUSHION-C         1           P6         PQPP94Y         PROTECTION COVER         5           P7         XZB15X25A04         PROTECTION COVER (SOFT CASE)         1	<b>A5</b>	PQQX10283Z	INSTRUCTION BOOK	1
P2         PQPN10080Z         CUSHION-A         1           P3         PQPN10154Z         ACCESSORY BOX         1           P4         PQPN10155Z         CUSHION-B         1           P5         PQPN10156Z         CUSHION-C         1           P6         PQPP94Y         PROTECTION COVER         5           P7         XZB15X25A04         PROTECTION COVER (SOFT CASE)         1	D.	DODK100647	CIET BOX	
P3 POPN10154Z ACCESSORY BOX 1 P4 POPN10155Z CUSHION-B 1 P5 POPN10156Z CUSHION-C 1 P6 POPP94Y PROTECTION COVER 5 P7 XZB15X25A04 PROTECTION COVER (SOFT CASE) 1		1		
P4         PQPN10155Z         CUSHION-B         1           P5         PQPN10156Z         CUSHION-C         1           P6         PQPP94Y         PROTECTION COVER         5           P7         XZB15X25A04         PROTECTION COVER (SOFT CASE)         1	_	1	ı	;
P5         PQPN10156Z         CUSHION-C         1           P6         PQPP94Y         PROTECTION COVER         5           P7         XZB15X25A04         PROTECTION COVER (SOFT CASE)         1	-	7.	f	'
P6         PQPP94Y         PROTECTION COVER         5           P7         XZB15X25A04         PROTECTION COVER (SOFT CASE)         1		1		1
P7 XZB15X25A04 PROTECTION COVER (SOFT CASE) 1		i .	3	1
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